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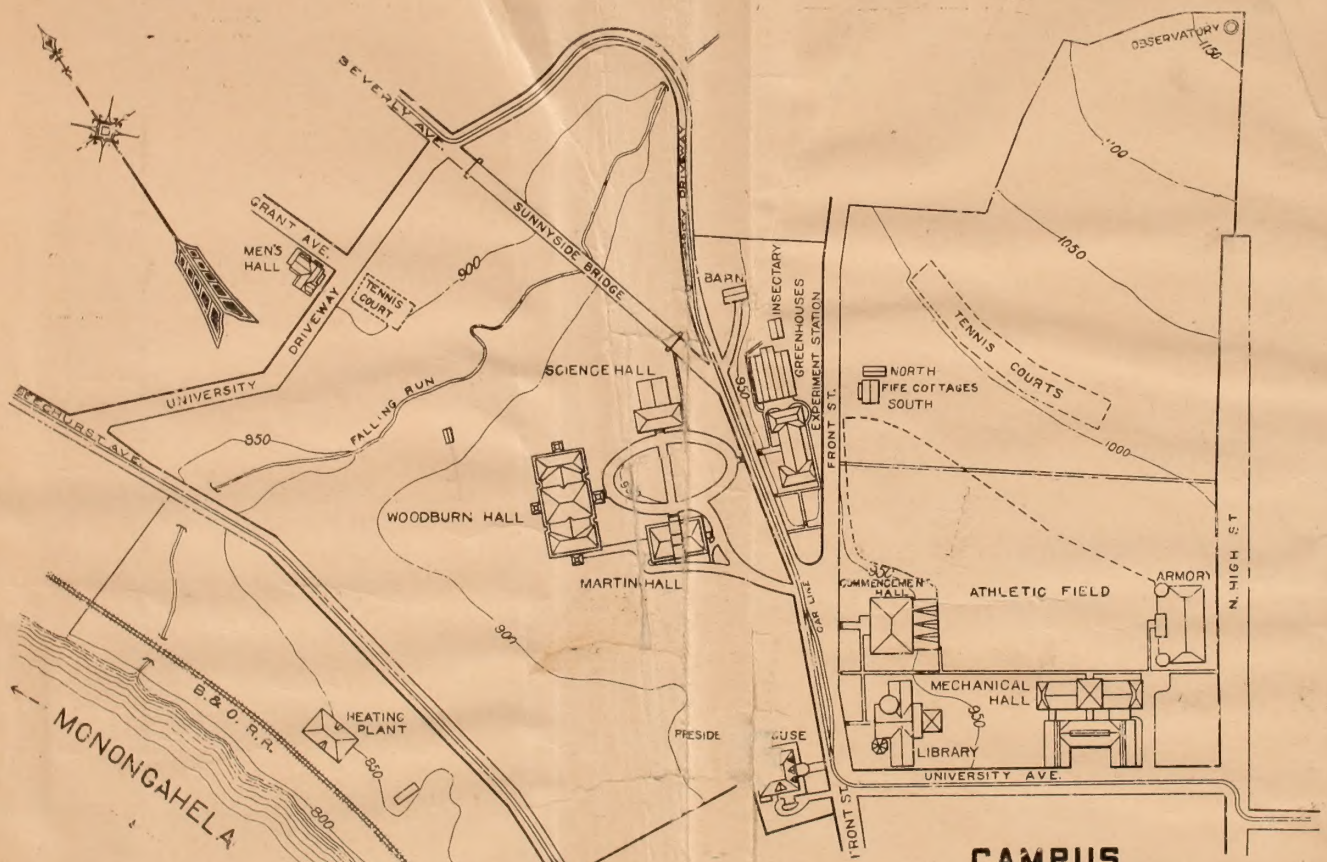

CAMPUS OF WEST VIRGINIA UNIVERSITY MORGANTOWN, W. VA.

SCALE

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WEST VIRGINIA UNIVERSITY

FORTY-SIXTH YEAR

CATALOGUE AND ANNOUNCEMENTS

1912 : : : : 1913

MORGANTOWN, WEST VIRGINIA
PUBLISHED BY THE UNIVERSITY

OHIO VALLEY PUBLISHING CO.
PARKERSBURG, W. VA.

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1913

JULY

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UNIVERSITY CALENDAR

1913

June 23, Monday.....Summer School Begins

August 22, Friday.....Summer School Ends

September 15, Monday .....First Semester Begins

September 15, 16, Monday and Tuesday.....
.....Matriculation and Registration of Students

September 17, Wednesday.....First Recitations of First Semester

September 17, Wednesday, 10 A. M. .....Fall Convocation

November 21, Friday.....Day for Mid-semester Report

November 27, Thursday to November 30, Sunday, inclusive....
.....Thanksgiving Recess

December 1, Monday .....Recitations Resume

December 5, Friday .....
...Fourth Anniversary Meeting of the Phi Beta Kappa Society

December 24 to January 5, 1914.....Christmas Holiday Recess

1914

January 6, Tuesday.....Recitations Resume

January 24, Saturday .....Last Recitations of First Semester

January 26, Monday to January 29, Thursday, inclusive.....
.....Final Examinations of First Semester

February 2, Monday, (Registration Day).....Second Semester Begins

February 4, Wednesday.....First Recitations of Second Semester

February 4, Wednesday, 10 A. M. .....Winter Convocation

April 8, Wednesday.....Day for Mid-semester Reports

April 9, Thursday to April 15, Wednesday, inclusive..Easter Recess

May 30, Saturday .....Memorial Day, a Holiday

June 9, Tuesday.....Last Recitations of Second Semester

June 10, Wednesday to June 13, Saturday, inclusive.....
.....Final Examinations of Second Semester

June 17, Wednesday.....Commencement

West Virginia University

MORGANTOWN

ESTABLISHED FEBRUARY 7, 1867.

THE STATE BOARD OF CONTROL

403 CAPITOL STREET

CHARLESTON, WEST VIRGINIA.

JAMES S. LAKIN, PRESIDENT.....Charleston, W. Va.

JOHN A. SHEPPARD.....Charleston, W. Va.

E. B. STEPHENSON, TREASURER.....Charleston, W. Va.

The State Board of Control has the direction of the financial and business affairs of the state educational institutions.

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STATE CAPITOL BUILDING

CHARLESTON, WEST VIRGINIA.

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The State Board of Regents has charge of all matters of a purely scholastic nature concerning the state educational institutions.

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DAVID DALE JOHNSON, A.M., EDITOR OF THE UNIVERSITY BULLETIN

WILLIAM J. WHITE, ACCOUNTANT.

OF THE COLLEGES AND SCHOOLS

The College of Arts and Sciences

FRANK BUTLER TROTTER, A.M., DEAN.

The College of Engineering

CLEMENT ROSS JONES, M.M.E., DEAN

The College of Agriculture

E. DWIGHT SANDERSON, B.SC.AGR., DEAN AND DIRECTOR OF THE AGRICULTURAL EXPERIMENT STATION

CALVIN R. TITLOW, DIRECTOR OF AGRICULTURAL EXTENSION

The College of Law

CHARLES EDGAR HOGG, LL.D. DEAN

The School of Music

LOUIS BLACK, DIRECTOR

The Summer School

WAITMAN BARBE, LITT.D., DIRECTOR

THE COUNCIL OF ADMINISTRATION

The President of the University and the Deans of the various colleges.

THE UNIVERSITY FACULTY

The President, Deans of the various colleges, Professors, Associate Professors and Assistant Professors in all divisions of the University, the Dean of Women, the Commandant of Cadets, the Director of the School of Music and the Librarian of the University.

STANDING COMMITTEES

Classification and Grades: Dean TROTTER, Professors JONES, CALLAHAN, HARE and KORTRIGHT (Secretary)

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Athletics. Professors WAGGONER and J. R. TROTTER, Associate Professor HODGSON, Assistant Professors WILLIS (Secretary) and GRUMBEIN.

Library. Mr. ARNETT, Professors REESE, VICKERS, ARMSTRONG, and CHURCH.

Women Students. Dean MOORE, Assistant Professor COLWELL, Mrs. SNEE, Miss HORNE and Miss OLIVER.

University Publications. Professors COX, ALDERMAN and WELLS, Associate Professors LEONARD and D. D. JOHNSON.

Student Publications. Professors WHITEHILL, STATHERS, and CHITWOOD, Associate Professors SMITH and DARBY.

Summer School. President HODGES, Dean F. B. TROTTER, Professors BARBE and DEAHL, and Director TITLOW.

Military and Gymnasium Board. Lieutenant ARCHER, Professor SIMPSON and Director EDMUNDS.

STAFF OF INSTRUCTION

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Professor of European History

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Professor of Public Speaking

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Professor of Secondary Education

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Professor of Mining Engineering

GEORGE FITCH WELLS, LL.D. Wagner Road
Professor of Law

ROLAND PARKER DAVIS 267 Fife Avenue
Professor of Structural and Hydraulic Engineering

DEAS ARCHER Front Street
First Lieutenant, Twenty-sixth Infantry, United States Army, Professor of Military Science and Tactics and Commandant of Cadets

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CALVIN R. TITLOW 100 Beverly Avenue
Director of Agricultural Extension

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Associate Professor of Entomology

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Head of the Piano Department

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Associate Professor of Latin and Italian

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Associate Professor of Mathematics

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Associate Professor of Farm Management

ARTHUR LINCOLN DACY, B.S. 28 Buckhannon Avenue
Associate Professor of Horticulture

DAVID DALE JOHNSON, A.M. — 305 Fayette Street
Associate Professor of English

DENNIS MARTIN WILLIS, A.B.,LL.M. — 212 Park Street
Assistant Professor of Commerce

CHARLES AUGUSTUS LUEDER, D.V.M. — 752 University Terrace
Assistant Professor of Veterinary Science

JOHN BEHNY GRUMBEIN, B.S.M.E.* — 195 Grant Street
Assistant Professor of Mechanical Engineering

ARLEIGH LEE DARBY, A.M. — White Building
Assistant Professor of Romance Languages

RACHEL HARTSHORN COLWELL, A.M. — University Driveway
Assistant Professor of Home Economics

BENJAMIN WALTER KING, A.B.†
Assistant Professor of Economics

SUSAN MAXWELL MOORE, A.B. — Woman's Hall
Instructor on the Piano

EVA EMMA HUBBARD — 265 Academy Street
Instructor in Drawing and Painting

GRACE MARTIN SNEE, B.M. — 649 Spruce Street
Instructor on the Piano and Pipe Organ

THOMAS HOWARD CATHER — 394 Willey Street
Instructor in Machine Shop and General Foreman of Shops

MARGARET WINTON HORNE — University Driveway
Instructor in Violin

CHARLES MOON, B.Sc.C.E. — 23 Cobun Avenue
Instructor in Physics

FREDERICK ROST KOELZ, A.B. — 293 Willey Street
Instructor in German

LUTHER FRANCIS SUTTON, B.Sc., B.Sc.AGR. — 162 First Street
Instructor in Horticulture

EUGENE CURTIS AUCHTER, B.Sc.AGR. — 457 High Street
Instructor in Horticulture

SAMUEL BENTON NUCKOLS, M.Sc.AGR. — Sunnyside Terrace
Instructor in Agronomy

WILLIAM PHILIP EDMUNDS, M.D. — 170 McLane Avenue
Instructor in Physical Training and Director of the Gymnasium

*On leave of absence September 1, 1913, to August 31, 1914.
†On leave of absence until September, 1913.

MARY BERTHA OLIVER, B.S. 561 Front Street
Instructor in Home Economics and Director of Physical Training for Women

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Instructor in Romance Languages

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Instructor in Anatomy and Pathology

RALPH EDWARD HUNT, B.S.AGR. 644 North Spruce Street
Instructor in Animal Husbandry

RAYMER EGBERT SEAMAN 574 Price Street
Instructor in Wookworking and Foundry Practice

RUFUS ASA WEST 181 First Street
Instructor in Metal Working and Stationary Engineer

FLORA RAY HAYES, A.B. 480 High Street
Instructor in Music

WALTER A. MESTREZAT 57 Bridge Street
Assistant in Music (Wind Instruments)

HELEN LOVELAND TREAT 353 Wilson Avenue
Assistant in Music

GEORGE WALTER GROW 509 Front Street
Assistant in Drawing and Electrical Engineering

EARL WOODDELL SHEETS 7 Locust Avenue
Assistant in Agricultural Extension

FRANKLIN MARION BRAND, LL.B.* Westover
Assistant in Law

ROY A. HALL†
Assistant in Law

IVAN VAUGHAN DETWEILER SHUNK 53 Carson Street
Student Assistant in Botany

JAMES EDWARD KENNEDY 480 Spruce Street
Student Assistant in Chemistry

MARTIN LOXLEY BONAR 88 Beverly Avenue
Student Assistant in Chemistry

DELFORD LEE COTRILL 491 Front Street
Student Assistant in Botany

*For first semester, 1912-13.
†For second semester, 1912-3.

THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION STAFF

E. DWIGHT SANDERSON, B.Sc.AGR. — 83 Beverly Avenue
Director

BERT HOLMES HITE, M.Sc. — Peabody Hotel
Chemist

NAHUM JAMES GIDDINGS, M.Sc. — 216 Cobun Avenue
Entomologist

WILLIAM EARL RUMSEY, B.Sc.AGR. — 415 Park Street
Plant Pathologist

HORACE ATWOOD, M.Sc.AGR. — Experiment Station Farm
Poultryman

WILLIAM HORACE ALDERMAN, B.Sc.AGR. — 184 First Street
Horticulturist

ISAAC SCOTT COOK, Jr., B.Sc.AGR. — 258 McLane Avenue
Agronomist

LEONARD MARION PEAIRS, B.Sc. AGR., M.S. — 457 High Street
Entomologist

PAUL BOMBERGER BENNETCH, B.S.AGR. — 519 Front Street
Dairyman

CHARLES AUGUSTUS LUEDER, D.V.M. — 752 University Terrace
Veterinarian

ARTHUR LINCOLN DACY, B.Sc. — 28 Buckhannon Avenue
Associate Horticulturist

ORVILLE M. JOHNSON, B.S.AGR. — 118 Willey Street
In Charge of Farm Management Investigations

FRANK BATSON KUNST, A.B. — 354 High Street
Assistant Chemist

CHARLES EDWARD WEAKLY, Jr. — 213 Cobun Avenue
Assistant Chemist

DAVID CARLTON NEAL, B.S. — 213 Cobun Avenue
Assistant Plant Pathologist

HUBERT HILL, B.Sc.,M.Sc. — 213 Cobun Avenue
Assistant Chemist

EUGENE CURTIS AUCHTER, B.Sc.AGR. — 457 High Street
Assistant Horticulturist

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Assistant Horticulturist

RALPH EDWARD HUNT, B.S.AGR. 644 North Spruce Street
Assistant in Animal Husbandry

WILLIAM JAMES WHITE Marion Street
Auditor

MARTHA ANN STEWART 118 Willey Street
Librarian

URIAH BARNES, LL.B.* 4 Ash Street
Secretary
*Resigned, January 1, 1913.

LIBRARY STAFF

LONNA DENNIS ARNETT, PH.D. 174 Front Street
Librarian

JESSICA GARDINER CONE 324 Willey Street
Assistant Librarian

KATHERINE CLIFTON HEDRICK Woman's Hall
Assistant in Law Library

ANNA GRACE COX, A.B. 316 Willey Street
Assistant Librarian

ROBERT CLIFTON SPANGLER 281 Second Street
Assistant Librarian

CLAIRE EGBERT HILBORN, A.B. 565 Pine Street
General Secretary, Young Men's Christian Association

JAMES SCOTT MURPHY, B.Sc.M.E.,E.E. 108 Beverly Avenue
Foreman of University Grounds and Buildings

THE UNIVERSITY

DESCRIPTION OF THE INSTITUTION

LOCATION.

Morgantown, the seat of the University, is the county seat of Monongalia county. It is a beautiful town of twelve thousand inhabitants, located on the Monongahela river and the Baltimore and Ohio railroad, 103 miles east of Wheeling, and the same distance south of Pittsburg. It has modern conveniences of natural gas, water-works, electric lights, street railways, local and long distance telephones, and is noted for its healthful conditions, physical, social, and moral. There are churches of the following denominations in the town: Presbyterian, Methodist Episcopal, Methodist Protestant, Baptist, Protestant Episcopal, Lutheran, Christian, and Roman Catholic. There are no saloons.

Few institutions of learning have more attractive natural sites. The University grounds border the Monongahela river and afford a most picturesque outlook. The campus comprises about fifty acres. The University has also a farm of about one hundred acres.

HISTORY

West Virginia University originated from the national land grant act of July 2, 1862, and from the subsequent action of the state legislature in accepting and carrying out the provisions of the act. On January 9, 1866, the board of trustees of the Monongalia Academy at Morgantown tendered to the legislature for the use of the contemplated state or land grant college, all its property, including Woodburn Female Seminary, estimated at $51,000, on condition that the college should be located at Morgantown. On January 30, 1867, the legislature accepted the property and on February 7 passed an act permanently establishing "The Agricultural College of West Virginia" and authorizing the governor to appoint eleven suitable persons as a board of visitors.

The eleven visitors held their first meeting on April 3, 1867, at which time they appointed Alexander Martin president and established collegiate, scientific and agricultural departments of instruction.

By an act of December 4, 1868, the name of the college was

changed to "West Virginia University" and the "board of visitors" to the "board of regents."

The dates of the establishment of the special colleges and schools now comprised in the University are as follows: the college of law, 1878; the college of engineering, 1887; the agricultural experiment station, 1888; the college of agriculture, 1897; the school of music, 1897; the school of fine arts, 1897; the school of agriculture, 1911.

The University has had eight regular presidents. Alexander Martin resigned in 1875. He was succeeded by John W. Scott, (acting president), 1875-7; John Rhey Thompson, 1877-81; Daniel Boardman Purinton (acting president), 1881-2; William L. Wilson, 1882-3; Robert C. Berkeley (chairman of the faculty), 1883-5; Eli Marsh Turner, 1885-93; Powell Benton Reynolds (acting president), 1893-5; James L. Goodnight, 1895-7; Jerome Hall Raymond, 1897-1901; Daniel Boardman Purinton, 1901-1911; Thomas Edward Hodges, 1911-.

GOVERNMENT AND ORGANIZATION

The financial and business affairs of the University and of all the other state educational institutions are directed by a state board of control consisting of three members appointed by the governor. This board also exercises a general control over the various public institutions of the state. The academic control of the University and also of the other educational institutions of the state, with the exception of the School for the Deaf, Dumb, and Blind, The Boys' Reform School, and The Girls' Industrial School, is vested in a single board of regents. The board is bi-partizan and consists of the state superintendent of free schools (ex officio), who is elected by the people, and of four other members who are appointed by the governor.

The internal administration of the University is vested in the President, The Council of Administration, and The University Faculty. All matters of a purely administrative or executive nature are in the hands either of the president alone or of the president and council. The faculty is the general legislative body; it fixes the requirements for entrance and graduation and has immediate direction of the general educational policy of the institution. Subordinate to the faculty are a number of standing committees, appointed by the president.

The University organization embraces:—

The College of Arts and Sciences.
The College of Engineering and Mechanic Arts.
The College of Agriculture.
The College of Law.
The West Virginia Agricultural Experiment Station.

The following schools and divisions are connected with the University in their management and work but do not confer degrees:—

The School of Music.
The School of Fine Arts.
The Summer School.
The School of Agriculture.
The School of Medicine.
The Division of Military Science and Tactics.
The Division of Agricultural Extension.

FUNDS

The funds for maintaining the University are derived from the following sources: (1) Interest on the land grant endowment of $115,750; (2) the Morrill fund; (3) the Hatch fund; (4) the Adams fund; (5) biennial appropriations by the state legislature; (6) fees and tuition. The annual income of the University and Experiment Station from all sources is now approximately $275,000.

BUILDINGS

The buildings are as follows:—

1. Woodburn Hall, a three-story building, containing the administrative offices, lecture rooms and the physiological and zoological laboratories. A portion of the third floor of this building is occupied by the University School of Music.

2. Martin Hall, a three-story building, containing lecture-rooms, laboratories for the departments of physics, chemistry, and geology, and the museum of geology and paleontology.

4. Commencement Hall, a large two-story building, containing a commodious chapel, with 1,500 seats, and the gymnasium.

5. The Agricultural Building, a two-story building, containing the laboratories and offices of the Agricultural Experiment Station.

6. The Armory and Drill Hall, for the Division of Military Science.

7. Mechanical Hall, occupied by the College of Engineering and Mechanic Arts.

8. The Library, containing the general library, reading, and seminary rooms.

9. The President's House.

10. The Central Heating Plant.

11. The Men's Hall, or dormitory.

12. The Women's Hall, or dormitory, for women students.

13. The Fife Cottages, containing lecture-rooms and the anatomical and botanical laboratories.

Besides these there are the various buildings on the University Farm.

All of the buildings mentioned, except the Men's Hall, the Fife cottages, and the farm buildings are of brick and stone.

THE UNIVERSITY LIBRARY

The Library Building is a three-story stone structure, 135 feet long by 50 feet wide, with book room annex in the rear. The basement of the building is used for storage. The first, or main floor, contains the reading and reference rooms, the cataloguing rooms and the office for the librarian. On the upper floors are rooms for government documents, storage, and for class work.

The reading and reference rooms are equipped with modern library appliances and are convenient to the book room in the rear.

The University Library consists of the General Library, the Law Library, and the Experiment Station Library. The General Library is located in the Library Building and numbers about 36,000 volumes, including 5,500 government documents and the Willey Library numbering 1,500 volumes. The Willey Library was donated to the University by the heirs of the late Senator W. T. Willey and is opened to the public for reference use. Two hundred and forty periodicals are received, including publications of societies and scientific journals. Most of the county papers of the state are on file in the reading room.

The Law Library, numbering 5,000 volumes, is located in Woodburn Hall. The library of the Agricultural Experiment Station, containing valuable sets of chemical journals and other technical material, in all about 5,000 volumes, is open for the use of members of the University.

All officers and students and, under special restrictions, persons not connected with the University, have the privilege of drawing books from the library for home use, two volumes being allowed at one time. The corps of instruction have direct access to the shelves and students may have this privilege for special investigation upon recommendation of their instructors. The most important reference books, and books used in connection with the courses of instruction, numbering between 4,000 and 5,000, are kept on open shelves in the reference room. A card catalogue, shelf list and

other bibliographic aids are provided and the members of the library staff are ready at all times to give assistance in research and investigation.

The library is open from 8 a. m. to 10 p. m. every week day during the semester except Thanksgiving day, Christmas day, New Year's day and the Fourth of July. On Sundays, the library is open for readers from 2 to 5 p. m. During the Christmas and summer vacations it is open on week days from 8 to 12 a. m.

PHYSICAL LABORATORY

The department of physics occupies the basement and first floor of Science Hall. The general lecture room is provided with water, gas, compressed air, electrical power, a special device for rapidly darkening the room, and a solid masonry pier for galvanometers, etc., requiring a non-vibratory support. The two general laboratories are large enough to accommodate 20 students working at one time and are equipped with the view of accomplishing the maximum amount of laboratory work in the minimum time. The photometer room is equipped with a Reichanstalt-Lummer-Brodhun Photometer and a Hilger Constant Deviation Spectrophotometer. The electrical standardizing laboratory is equipped with three small individual switch-boards connecting with the main power board, a full line of D. C. and A. C. measuring instruments, six mounted galvanometers, a Leeds and Northrup Potentiometer with standard cells and resistances for D. C. calibration, a Siemens Dynamometer for A. C. calibration, Thompson, Ring, and Epstein sets for iron testing, standard capacities, Wheatstone and Cary-Foster Bridges for resistance measurements. The shop is supplied with a full line of bench tools for the manufacture and repair of apparatus, and has in addition a 9-in. lathe, a circular saw and emery wheels,—all driven by a 3-HP motor.

Electrical power is supplied from a mortor-generator set, the D. C. voltage being controlled by a Tirrill Regulator insuring steady voltage for laboratory work. It has in addition a 220-volt A. C. supply, and 50 volts from a storage battery. The distributing board is equipped with auto-transformers and special rheostats making it possible to distribute various kinds of power to each laboratory in the department. The department is also equipped with apparatus for advanced work in light and heat.

The University Library has on file the current numbers of most of the standard journals of physics.

CHEMICAL LABORATORIES

The rooms assigned to the Department of Chemistry consist of

two lecture rooms and four large laboratories. Connected with these are two weighing rooms and two preparation rooms. The labortories afford working space for one hundred students at a time, and are supplied with water, gas, chemicals and apparatus necessary for practical work. This apparatus includes a large number of pieces used in illustrating the elementary principles of the science, as well as the more expensive instruments used in analytical work. A collection of the latest reference and text books is kept within easy reach of the students.

In addition to the ordinary apparatus, combustion furnaces, tube furnaces, a colorimeter, specific gravity apparatus, a Berthelot bomb calorimeter, a spectroscope, etc., can be issued to the student from the stock room when his work demands them.

MUSEUM OF GEOLOGY AND PALEONTOLOGY

The equipment for the purpose of illustrative teaching in geology, paleontology and mineralogy consists of many thousand fossils, casts, and models, a good collection of minerals, specimens of all the important building stones, and Ward's College collection in Paleontology, showing the advancement from the early forms of life to those of the present time. The University is situated in the midst of a great coal producing region, within five miles of the western fold of the Appalachian mountains, and oil and gas wells are but a short distance away. The natural facilities for the study of geology are unsurpassed.

LABORATORIES FOR PHYSIOLOGY AND PHARMACOLOGY

The laboratory devoted to the work in physiology and pharmacology is large and well lighted. It is supplied with tables, each accommodating two students who work together. Each table has a complete set of Harvard physiological apparatus which is lent to the student with a charge for breakage only. The apparatus necessary for the experimental work in pharmacology is issued to the students in the same way.

ANATOMICAL LABORATORIES

The laboratory of microscopic anatomy is a large well lighted room on the basement floor of Woodburn Hall. It is equipped with an adequate number of high power microscopes and with apparatus and materials for making sections and for staining and mounting tissues. The work in gross anatomy and dissection is done in South Fife Cottage, a separate building used for this purpose alone. Abundant material for dissection is provided.

THE ZOOLOGICAL LABORATORIES

The work of embryology and neurology is carried on in the zoological laboratories, which are well lighted and amply large for the number of students in these classes.

The equipment consists of a sufficient number of high-grade compound microscopes, each supplied with a camera lucida; dissecting microscopes; microtomes; incubator; paraffin bath; projection lantern; combined drawing and photomicrographic apparatus, etc. There are also sets of Zeigler's frog and chick models; various wax models of mammalian embryos; serial sections of frog, chick, and pig embryos; entire, dissected and cleared human embryos; charts; skeletons, etc.

For the work in neurology a sufficient number of sheep brains can easily be obtained, and the supply of entire and dissected human brains is being increased as fast as possible.

THE BOTANICAL LABORATORIES

The laboratories for botany and bacteriology are located in North Fife Cottage. The laboratories are supplied with hot and cold water, reagents, glassware, sterilizers, incubators, microscopes with oil immersion objectives, dissecting lenses, microtomes, paraffin ovens, and waterbaths. One of the rooms on the lower floor of the laboratory building is devoted to the cleaning and sterilizing of glassware and the preparation of culture media; in the other are kept stock cultures of the various organisms studied and life animals for experimental purposes. The laboratory for microscopic work is on the second floor. It is exceptionally well lighted from the north and east and has individual lockers for sixteen students. All supplies needed by the students except slides, cover glasses, and slide boxes, are furnished at a minimum cost.

In the libraries of the University and Experiment Station are a number of current botanical and bacteriological publications besides many bound volumes, texts, works of reference, monographs, and bulletins on botany, bacteriology, and related subjects.

MILITARY TRAINING

Military Training is prescribed for all regular students in the University below the rank of Junior unless such students are more than twenty-three years of age upon their entrance to the University. Certain exceptions to this requirement are stated in full in the detailed announcements of the Division of Military Science.

Students who secure appointments as state cadets are exempt from the payment of tuition or matriculation fees and are at no

expense for use of text books. Enrollment in the Division of Military Science or appointment as a state cadet does not render the student liable for military service either to the State or to the United States government.

PHYSICAL TRAINING

Gymnasium

For the physical training of students opportunities are offered by the gymnasium. It is furnished with an anthropometric equipment, baths, dressing room, lockers, and all kinds of apparatus usually found in gymnasiums. In all the work the aim is to develop health, strength and vitality, and such special exercises are prescribed as may be necessary to symmetrical development.

Athletics

The department of athletics, as now organized, is under the supervision of a director. Football, baseball, basketball, track and tennis teams are organized and trained each season. Two field days are held annually, one in the fall and one in the spring. The athletic field is provided with a grand-stand, which adds greatly to the enjoyment and profit of athletic sports. All field sports are under the control of the athletic board of control which is made up of the faculty committee on athletics and five representatives of the student body, chosen from the various classes of the University. The University is a member of The National Collegiate Athletic Association.

Physical Training for Women

All women students in the University with the exceptions hereinafter named are required to register for work in physical training. Instruction is given three hours a week during the school year and a credit of one semester hour is given for each semester's work satisfactorily completed. The following students are exempt from this requirement: (1) All students classified as juniors or seniors; (2) all students whose work is entirely in the School of Music or the School of Fine Arts; (3) all students who are taking work only in the short courses in the College or School of Agriculture or in Home Economics.

The gymnasium for women is located in the basement story of Woodburn Hall. It is provided with dressing room, baths, and new and adequate equipment.

UNIVERSITY FEES AND EXPENSES

In the College of Arts and Sciences, the College of Engineering, and in the College of Agriculture tuition is free to West Virginia students. For students not residents of West Virginia the tuition fees are $30.00 per semester, or $50.00 per year.

In the College of Law and the School of Medicine the tuition fees are $15.00 per semester, or $25.00 per year, for resident students, and $30.00 per semester, or $50.00 per year, for non-resident students.

The matriculation fee is $5.00, payable upon entering the University by all students except cadets and those whose work is exclusively in music or art.

The contingent fee is $3.00 per semester, payable by all students except cadets.

Each cadet upon entering the corps must pay $17.50 for a uniform.

The athletic fee is $2.50 per semester, payable by all students.

A fee of $2.00 each semester is charged for registration and the issuance of class cards. This fee is remitted to all students who procure class cards during the first two days of the first semester, and the first day of the second semester. It is exacted in all other cases. Students whose work is exclusively in music or art, or in both, are excused from payment of the $2.00 registration fee.

Class officers will issue class cards only on presentation of the receipt for the above fees, signed by the registrar and bursar.

The diploma fee is $5.00, payable by all students at the beginning of the semester in which they expect to receive their degree or diploma.

A fee of $1.00 is charged for furnishing a copy of a student's record in the registrar's office after the regular semester reports have been issued.

Students in laboratory courses pay special fees to cover the cost of materials used.

BOARD AND LODGING

Board and lodging together may be obtained in Morgantown for $3.25 per week. Most students, however, pay from $3.75 to $4.50 per week. Furnished rooms may be obtained in private families at from $1.00 to $1.25 per week. Board in students' clubs costs from $2.50 to $3.00 per week; in private families, from $3.00 to $4.00. The minimum rates here stated are those obtainable at the Men's Hall.

ESTIMATED EXPENSES FOR A YEAR OF NINE MONTHS

Room rent	$ 27.00	to	$ 45.00
Board	90.00	to	120.00
Laundry	9.00	to	13.00
Text-books	8.00	to	30.00
Contingent and athletic fees	6.00	to	11.00
	$140.00		$219.00

To this estimate must be added matriculation, tuition, diploma, and laboratory fees, in the case of students who are required to pay them, traveling expenses, clothing, and miscellaneous expenses, which depend largely upon the tastes and habits of individual students.

Text-books are kept for sale in the University book store.

State cadets are furnished their text-books and stationery free and are exempt from the payment of matriculation, contingent, and tuition fees.

ADMISSION TO THE UNIVERSITY

METHODS OF ADMISSION

Students are admitted to the University either by examination or on certificate from an accredited preparatory school. In the latter case the certificate must set forth the work of the student in detail. Diplomas or certificates of a general nature will not be accepted.

Candidates for admission to the University must present certificates of good moral character and, if from other colleges or universities, must present letters of honorable dismissal.

Candidates for admission who come from other institutions of learning without letters of honorable dismissal may, at the discretion of the registrar, be allowed to register provisionally. In every such case, the registrar will himself make immediate inquiry of the institution from which the applicant comes concerning his standing as a student in that institution. If a certificate of honorable dismissal cannot be obtained, the registration will be cancelled and all fees paid by the applicant will be returned.

The course of procedure above described will be followed also in cases of students from accredited schools, who offer themselves for matriculation without the regular certificate as prescribed above.

ENTRANCE CREDITS

The requirements for admission to the various colleges of the University are stated in terms of units.

A unit in any subject represents the amount of work that may be done in a standard high school in a year of thirty-six weeks, with five recitation periods of forty-five minutes each, per week. In courses where laboratory work is required, from two to three hours of laboratory work is considered the equivalent of one hour recitation, according to the amount of outside preparation required in connection with such work.

Certificates of entrance credits must be on the blank form prescribed by the committee on classification and grades, or on a similar form, so that credit values, in units, may be readily computed.

The chairman of the committee, or any member acting in his stead, may list and certify the credits of any applicant for admission to the University when such credits are from an accredited school and in proper form, and are of sufficient value in units to entitle the applicant to classification as a freshman, or first year classman. Certificates from schools not on the accredited list must be approved by the committee.

MATRICULATION AND REGISTRATION

In order to gain admission to the University, the student must first report at the registrar's office in Woodburn Hall. A blank will be furnished, which, on being signed, will be presented to the registrar. That officer will then assign the student to a class officer and will certify to the bursar the fees, if any, which are to be paid. On the payment of these fees, the student will be assigned to the proper classes by his class officer. No student is permitted to become a member of any class until his registration is completed.

All students are required to register at the beginning of each semester.

SPECIAL STUDENTS

Persons who do not desire to become candidates for a degree, may, by permission of the committee on classification and grades, be admitted as special students, subect to the following provisions:

1. Special students must as a rule be twenty years of age or

over. Only in exceptional cases will permission be given to applicants under that age.

2. Special students must satisfy at least nine units of the requirements for admission, including two units of English.

3. Every application for admission as a special student must be in writing, and must set forth fully the applicant's reasons, together with a detailed statement of the studies he desires to pursue.

4. Special students are subjected in all respects to the usual rules relating to registration and scholarship. They may be assigned to classes for which they apply, it being understood, however, that admission to any class rests entirely with the instructor in charge, and further, that admission to any class when so granted does not necessarily imply credit for prerequisites.

5. Special students shall not have their work certified for credit to any other institution, but a general statement of work done may be given if applied for; in every case, this statement shall show that the work was done under registration as a special student, and in case the full requirements for admission to the University have not been satisfied, the statement shall set forth the fact.

CONDITIONAL ADMISSION

Persons who lack not more than two units of the regular entrance requirements of any college in the University may register as conditioned freshmen or first year men in that college.

Persons who lack not more than four units of the regular entrance requirements of any college are permitted to enter certain courses offered in the University for the purpose of securing the credits which are deficient. The courses available under this provision are some elementary college courses in language, history, science, and mathematics, which may be offered either for entrance or college credit, and also courses A and B in English and course 1 in algebra (Mathematics 1). For each of the last three courses named a half unit entrance credit will be given. Students who are allowed to enter with deficient credits will be subject to rules 4 and 5 given above for special students.

ADVANCED STANDING

All applications for advanced standing in college work must be made to the committee on classification and grades not later than two weeks after the applicant's registration. When certificates of work done elsewhere are offered, the committee will consider them,

and, if they are adjudged sufficient, the credits they call for will be certified to the registrar by the chairman of the committee. If no certificates are offered, or those offered are not considered sufficient for the credits asked, the applicant will be sent by the committee to the heads of the departments in which credit is sought, who will report, after examination, to the committee, on the form furnished, the numbers, names, and values of the courses, if any, for which the applicant is entitled to credit. The applicant shall, at the discretion of the committee, have the privilege of presenting his certificates to the heads of the departments, who may give them such recognition in connection with the examination as they see proper. When the credit to be given, if any, has been determined, it shall be reported by the head of the department to the chairman of the committee, on the form provided, always under seal, and in no case must information of such credit be given to the applicant before the report has been sent to the committee. Before credits in this way are certified to the registrar, all certificates must be returned to the chairman of the committee, and by him placed on file.

RULES GOVERNING CLASSIFICATION AND SCHOLARSHIP

THE CLASS OFFICER

The duties of the class officer are as follows:

1. To assign the student to proper courses, and see that prescribed work is taken in order.
2. To supervise the selection of elective courses by the student.
3. To keep a record of the work done by the student and to recommend him for his degree or diploma when the work is completed.
4. To have general oversight of the student's college life. The student will look to his class officer for advice and guidance in all matters pertaining to his work. Withdrawal from classes, changing from one class to another, etc., will always require the class officer's consent.

CREDITS

1. A credit or semester-hour represents the amount of work done in one semester (eighteen weeks), in one recitation hour with two preparation hours a week. From two to three hours of laboratory work is considered equivalent to an hour of recitation, according to the amount of outside work assigned in connection with the laboratory hours.

2. The minimum number of hours for which a student may register in any semester is fourteen in the College of Arts and Sciences, fifteen in all other colleges and schools.

The maximum number of hours a semester is seventeen in the College of Arts and Sciences, eighteen in other colleges and schools.

3. No course for which a credit has already been given shall be counted toward the minimum number of credits prescibed for a semester's work in any college, unless by special permission of the committee on classification and grades.

4. The committee will consider the question of granting permission to any student to take more than the maximum amount of work permitted as a semester's work in any college only on the presentation of a petition approved and signed by the class officer, and accompanied by a statement of the student's record for the preceding quarter. Such petition must be presented within seven days after the day set in the catalogue for the opening of the semester.

5. Fewer than ten hours in an ancient or a modern language will not be counted toward any University degree, diploma, or certificate.

CLASSIFICATION

1. No student shall be classified as a freshman or first year student who is conditioned in more than two units of entrance requirements.

2. The number of courses required for classification as a sophomore or second year, junior or third year, and senior or fourth year student varies in the different colleges. (See announcements of the colleges in subsequent pages).

3. Classification of students for publication in the catalogue shall be made on the basis of the work to their credit on November 1 of each year, except in the case of students entering later in the year.

CLASS STANDING AND EXAMINATIONS

1. System of Grading.—Students are graded on a scale in which one hundred per cent. is regarded as perfect and seventy per cent. as a passing grade.

2. Absences.—Punctuality in attendance and attention to the work of the classroom will be given much consideration in determining the class standing of the student. Every unexcused absence will effect a reduction of one per cent. in the student's final grade for the course. All excuses for absence except as noted in the paragraph following, should be made to the registrar.

In case of absences at the beginning of either semester a deduction of two per cent. from the final grade in every subject shall be made for each exercise missed, for all absences not more than seven in number, unless such absences are excused by the committee. If the absences are more than seven in number, full credit for the course will not be given, unless such absences are excused by the committee and the work missed made up to the satisfaction of the instructor. Excuses for such absences must be presented to the committee on special blanks furnished for that purpose.

3. **Withdrawal from a Class.**—The permission of both class officer and instructor shall in all cases be necessary for the withdrawal of a student from any class or for his transfer from one class to another. After the first six weeks of the semester have elapsed the permission of the committee on classification and grades must also be obtained. If a student discontinues a course without permission his standing in that course shall be reported to the registrar as zero.

4. Mid-semester Reports.—Each instructor is required to make a mid-semester report of the standing of all students in his classes. The standing of the student as it appears in this report is based on the daily recitation grades and on a special test given during one or more of the regular recitation periods. These reports will be made to various class officers on the "Day for Mid-semester Reports" as announced in the calendar. The class officers will forward the reports to the registrar within two days. Any student whose average standing in all studies as shown by the mid-semester report is less than fifty per cent. will be suspended from the University for the remainder of the semester.

5. Examinations and Final Grades.—In practically all the courses offered in the University a written examination is required at the end of the semester. Both the class standing and the exaination grade of the student are considered in making up the final grade. These final grades must in all cases, except in case of unavoidable absence from examination as provided in rule 6, be reported at the end of the semester and not held over by the

instructor to a later time or reported as incomplete. Reports of final grades are to be made on the class cards presented by the students at their entrance to the course and are to be sent to the various class officers, who will report them in turn to the registrar.

6. Absence from Examination.—If the student attends the course throughout the semester and is absent from examination, without permission, the instructor shall count the examination as zero, and report the final grade as one-half the recitation grade. If the student is unavoidably absent from examination, and has a recitation grade of eighty-five or over, the instructor may report the recitation grade as the final grade in the subject. If the recitation grade is under eighty-five, and the absence from examination is for reasons satisfactory to the instructor, the fact will be recorded on the card returned to the class officer, and the student shall have the privilege of taking the examination at a later time.

7. Conditions and Failures.—If the final grade of any student for any course is below sixty, it shall be recorded as a "failure," and the student must take the course again if he desires credit for it. If the final grade is sixty, or over, but below seventy, it shall be recorded as a "condition," and the student shall have the privilege of a second examination, which must be taken at the time designated by the instructor, and applied for not later than ten days after the opening of the succeeding semester. A condition not removed within the semester following the one in which it was imposed becomes a failure. If the final grade after a second examination is again below seventy, it shall be recorded as a "failure."

8. Suspensions.—Any student whose standing in two or more courses is less than sixty per cent. or who fails to make the average standing of sixty per cent. in all of his courses for any semester, shall be suspended from the University for the succeeding semester. If, however, the failure as above is due to the abandonment of any class, or withdrawal from the University without permission, or to absence from examination without reasonable excuse, the suspension shall be indefinite. If a student suspended for any semester by the operation of this rule reenters the University and again becomes subject to it, his suspension shall be indefinite.

The committee on classification and grades will relieve any student from the operation of this rule for satisfactory reasons. The student asking for relief must, when possible, appear before the committee in person; a statement from the student's class officer and instructors concerned will also be required.

9. Reports.—A report of each student's work is made at the close of each semester, either to the student himself or to his parent or guardian. A complete record is also kept in the registrar's office.

The fee for making a copy of this record after the semester reports have been sent out is one dollar.

In cases where a student's work is unsatisfactory as shown by the mid-semester test a mid-semester report will also be made both to the parent or guardian and to the student.

WORK DONE OUT OF RESIDENCE

Work done out of residence is discouraged. In case of courses begun at the University and not completed by reason of illness or otherwise, however, permission to complete the work in absentia under direction of the regular University instructors may be granted by the Committee on Classification and Grades; but in such cases credit shall be given only upon report of a grade of not less than eighty per cent. on final examination.

DEGREES

All University degrees are conferred by the State Board of Regents upon recommendation of the University faculty. Degrees are granted only once in each year, at the annual University commencement. No degree will be conferred upon a candidate who has not done at least the last thirty hours of his work while in actual residence at the University.

The names of all students who are to appear as candidates for degrees in any year must be reported by their respective class officers to the committee on classification and grades not later than the beginning of the second semester.

WITHDRAWAL FROM THE UNIVERSITY

A student desiring to withdraw from the University must apply to the President for permission. When the withdrawal permit has been secured it must be presented by the student to his class officer who will forward it to the registrar. Students who withdraw from the University without permission will have their grades reported as zero at the end of semester and will then be liable to indefinite suspension as stated in Rule 8 above.

GENERAL INFORMATION

DISCIPLINE

The rules and regulations which students are required to observe are few, simple, and reasonable:—civil and orderly conduct; punctuality and regularity in attendance upon all required exercises; reasonable diligence in the performance of the work prescribed, and abstinence from drinking, gambling and like gross vices.

Students who do not comply with these requirements will not be allowed to remain in the University.

All matters of discipline are in charge of the President of the University in consultation with the dean of the college or head of the division of the University in which the student concerned is enrolled.

THE CONVOCATION

The University Convocation is held weekly on Wednesday morning at ten o'clock in Commencement Hall. No classes or other University exercises are held at this hour and opportunity is afforded for all members of the University, both instructors and students, to attend the weekly meeting. The hour is occupied by lectures and addresses, discussion of student interests and problems, and the consideration of questions relating to the general University welfare.

In connection with the weekly convocation brief devotional exercises are usually held under the direction of the Chaplain of the University. The singing at these exercises is in charge of the Director of the School of Music. Attendance is entirely voluntary.

CHRISTIAN ASSOCIATIONS

The Young Men's Christian Association is organized for the purpose of cultivating the best social and spiritual atmosphere in the University, and training the students in lines of practical service. Regular meetings are held every Friday evening, in the Association Room in Woodburn Hall. All men in the University are eligible to membership in the Association.

The administrative policy of the Association is directed by an advisory board, composed of members of the faculty, business men of the town, alumni and students. A general secretary is employed, who gives his full time to the work. The Y. M. C. A. Office and

Reading Room is in Woodburn Hall. Mr. C. E. Hilborn is the present secretary.

Membership in the Young Women's Christian Association is open to all young women of the University. Regular devotional meetings are held every Friday at 6:30 p. m. in the Women's Parlor in Woodburn Hall.

Systematic courses in Bible Study are offered, both for men and for women, which cover the four years of college life. The classes are small in size, informal in character, and give opportunity for friendly, informal discussions of religious problems and personal convictions. Special courses are also offered in the study of Christian Missions. Delegates are sent each year from each association to the State and International Student Conventions.

PHI BETA KAPPA

The Alpha of West Virginia Chapter of the Phi Beta Kappa Society is established at the University. Stated meetings or public exercises of the Society are held twice annually; the Anniversary meeting on December 10, and the Annual meeting during Commencement Week. The honor of membership may be conferred upon candidates for the degree of Bachelor of Arts who have maintained a high scholarship rank during their college course; also upon members of the faculty and instructional staff of the University and upon alumni of any college in the University. The president of the chapter for the year 1913 is Professor John H. Cox; the secretary, Professor A. R. Whitehill.

OTHER SOCIETIES

1. The Columbian Literary Society. Regular meetings every Friday night in its own hall in Martin Hall. Membership open to all students of the University.

2. The Parthenon Literary Society. Regular meetings every Friday night in its own hall in Martin Hall. Membership open to all students of the University.

3. The University Dramatic Club. The purpose of this organization is to stimulate an interest in literary and dramatic work in the University. This is accomplishes through the practical and systematic study of standard plays, and through the public presentation of at least one play in each college year. All University students are eligible to membership in the Dramatic Club, but those desiring to enter must pass a series of tests under the direction of the professor of public speaking.

4. The Choral Society. Regular meetings every Monday at

7:30 p. m. in Commencement Hall. Membership open to all students in the School of Music and all others interested.

5. The Athletic Association. Organized for the purpose of encouraging and developing the athletic interests of the University. Incorporated under the laws of West Virginia. Membership open to all students of the University.

6. The Students' Publishing Association. Organized for the purpose of publishing the college papers. At present there are published the Athenaeum, a weekly newspaper, and the Monongalian, a quarterly literary magazine.

7. The Engineering Society. Regular meetings the first and third Friday nights of each month in its room in Engineering Hall. Membership open to all students in the College of Engineering and Mechanic Arts.

8. The University Grange, Number 373, Patrons of Husbandry. Regular meetings every Tuesday night. Membership open to all students in the College of Agriculture and to others who may be elected.

9. The English Club. Regular meetings on the first Thursday night of every month.

10. The Beowulf Gedriht. Regular meeting in October, November, February, April and May. Open to all members of the University upon the fulfillment of certain scholarship qualifications.

11. The Woman's League. An organization of all the woman students of the University for the purpose of maintaining the general welfare and special interests of such students. The league is controlled by a governing board containing both faculty and student members. Social meetings are held once each quarter.

12. The Agricultural Association. An organization of the students of College of Agriculture to promote their general interests. Meetings on first Thursday of each month.

PRIZES

All contestants in any of the contests in oratory, declamation, or debate, must have received credit for at least three hours in public speaking.

No composition, in whole or in part, shall be submitted in competition for two prizes.

Only students pursuing courses leading to baccalaureate degrees are eligible for any prize offered.

No student shall be eligible to enter any contest who has not been a resident student in this University for at least one semester preceding the semester in which the contest is to be held, and who is not a resident student in good standing in the University in the semester in which the contest is held.

No successful contestant may become for a second time a competitor for the same prize.

If in any contest there are fewer than two competitors, no prize will be given in that contest.

Students intending to compete in any essay-writing contest must notify the chairman of the committee on public exercises not later than March 15. Three typewritten copies of each essay must be in the hands of the chairman of the committee not later than May 15.

The conditions upon which the awards in the several contests are made may be learned upon application at the President's Office, or to the members of the committee on public exercises.

I. The Inter-Society Prizes

Prizes aggregating one hundred and fifteen dollars are awarded annually by the board of regents of the University to the literary society whose representatives excel in declamation, original oratory, essay-writing, and debate. The amounts of the several prizes are: for the debate, $50.00; for the oration, $30.00; for the essay, $20.00, and for the declamation, $15.00.

II. The Regents' Prize in Composition

A prize of fifty dollars is awarded annually by the board of regents of the University to the student in any one of the regular college courses who shall write the best essay on a topic selected by the committee on public exercises. The subject for 1913-1914 is "The Fortification of the Panama Canal."

III. The Edward Thompson Company Prize

The Edward Thompson Company offers for the year 1912-13 to the student in the senior law class who shall write the best essay on some subject in law, to be selected by the faculty of the College of Law, a prize, consisting of a set of the Encyclopedia of Pleading and Practice, in twenty-three volumes. The value of this work is $138.00.

IV. The American Law Book Company Prize

The American Law Book Company of New York offers as a prize for the best essay on some subject in law by any student in the College of Law a set of the Cyclopedia of Law and Procedure in twelve volumes. The subject of the essay and the conditions governing the contest for the prize will be announced by the faculty of the College of Law.

V. The Callaghan and Company Prize

The law publishing firm of Callaghan and Company of Chicago offer as a prize for an essay writing contest similar to those described above a set of Andrews' American Law in two large volumes. This contest is also open to any student in the College of Law

VI. The Bryan Prize in Political Science

The Hon. William J. Bryan has given a sum of money, the annual income of which is to be offered as a prize to the student in the University who shall write the best essay on some subject in the science of government. The amount of the prize for the present is fifteen dollars. The subject for 1913-1914 is "State Boards of Arbitration with Compulsory Powers to Settle Disputes Between Employers and Employees."

VII. The Tax Commission Prize

The members of the State Tax Commission of 1902, W. P. Hubbard, Henry G. Davis, John K. Thompson, L. J. Williams, and J. H. Holt, have donated the sum of $1,350, the income of which is to be used as a prize for the "best original work bearing on matters of taxation in West Virginia." The conditions of competition are determined by the Council of Administration. The amount of the prize at present is $70.00. The subject for 1913-1914 is "A Special Tax to Support the State Educational Institutions of West Virginia."

VIII. The Russell Love Morris Prize in Civil and Mining Engineering

Russell Love Morris, C.E., Professor of Civil Engineering, offers a prize of fifty dollars annually to the student in the department of civil and mining engineering who presents the best thesis on some subject of special application to the needs and resources of West Virginia.

THE MEN'S HALL

The Men's Boarding Hall is situated at 52 University Driveway. There are rooms for the accommodation of from twenty to twenty-five young men and dining-room accommodations for fifty. The hall is now in charge of the Students Co-operative Club.

THE WOMEN'S HALL

The Women's Hall is centrally located at the corner of Willey and Spruce streets, and will accommodate between forty and fifty young women. Miss Susan Maxwell Moore, Dean of Women, is in charge of the Hall. Anyone desiring information as to prices, or available rooms in the Hall, should apply to Miss Moore.

BOARDING AND ROOMING PLACES

The matter of furnishing information to new students regarding suitable boarding and rooming places is in charge of the Y. M. C. A. and Y. W. C. A. of the University. On their arrival in Morgantown new students should come directly to Woodburn Hall where they will find complete lists of rooms and boarding places and also upper classmen who will help them in getting located and matriculated. During the opening days of the semester committees from the two Christian Associations meet new students at trains and are ready to render them every assistance possible.

Young men desiring information in advance of their arrival in Morgantown may address the Board and Rooms Committee, University Y. M. C. A., Morgantown, W. Va. During July and August information may be secured by writing to Frank B. Lewellyn, 570 Spruce street, Morgantown, W. Va. Young women may address Miss Pearl Hodges, 552 Spruce street, Morgantown, W. Va.

AID FOR STUDENTS

The Employment Bureau, organized by the University Y. M. C. A., undertakes to assist earnest and worthy students who are dependent upon their own efforts for the expenses of their education, to obtain various forms of employment in Morgantown. Prospective students desiring such aid should correspond with C. E. Hilborn, Secretary of the Y. M. C. A., before entering the University, stating the kind of work desired and the nature of past experience in any occupation. The work consists largely in waiting table, caring for rooms and lawns, clerking in stores, stenographic services, etc.

The Woman's League of the University has also established an exchange through the medium of which the women of Morgantown may obtain the services of young women students for such work as cooking, sewing and mending, or other light housework, caring for children, tutoring, assisting at social functions, or secretarial work of various kinds. The rate of remuneration is fixed by the Woman's League board and depends upon the time spent and the kind of work done.

ACCREDITED AND RECOGNIZED PREPARATORY SCHOOLS.

The University is a part of the public school system of the state and desires that its relations with the other parts of the system be as close and intimate as possible. The committee on classification and grades has full charge of all matters pertaining to accredited and recognized schools. School superintendents, principals, or boards, desiring to have their schools placed on the accredited or recognized list, should make application to the committee.

The University provides a special form of certificate for entrance credits, copies of which may be obtained at any time upon application to the President of the University or the chairman of the committee on classification and grades. A supply should be kept on hand by the principal of each accredited or recognized school.

ACCREDITED PREPARATORY SCHOOLS

Accredited schools are those which offer a sufficient amount of work to admit their students to the freshman class in the College of Arts and Sciences.* Eligibility to the list of accredited schools depends on the quantity and quality of the work done. The following provisions concerning the quality of the instruction must be complied with:

1. The scholastic attainments of teachers in accredited schools must be equivalent to that of a graduate of a standard college and should include professional preparation and some special training in the subjects they teach.

2. The number of daily periods of class room instruction given by any one teacher should not exceed five.

3. The faculty should consist of not fewer than three teachers exclusive of the superintendent of schools, except in cases where the number of students does not exceed thirty or forty.

4. Laboratory and library facilities must be adequate to meet the needs of instruction.

The list of accredited schools is as follows:

Alderson Academy.....Alderson, W. Va.
Allegheny County Academy.....Cumberland, Md.
Allegheny Collegiate Institute.....Alderson, W. Va.
Bluefield High School.....Bluefield, W. Va.
Broaddus Classical and Scientific Institute.....Philippi, W. Va.
Cameron High School.....Cameron, W. Va.

*As the requirements for admission to the College of Engineering are all prescribed, it is possible that a graduate of an accredited school may not have some of the prescribed work, and so not be able to enter the freshman class in that college.

Ceredo-Kenova High School.....Ceredo, W. Va.
Charleston High School.....Charleston, W. Va.
Clarksburg High School.....Clarksburg, W. Va.
Connellsville High School.....Connellsville, Pa.
Elkins High School.....Elkins, W. Va.
Fairmont High School.....Fairmont, W. Va.
Grafton High School.....Grafton, W. Va.
Hinton High School.....Hinton, W. Va.
Huntington High School.....Huntington, W. Va.
Keyser High School.....Keyser, W. Va.
Linsly Institute.....Wheeling, W. Va.
Mannington High School.....Mannington, W. Va.
Martinsburg High School.....Martinsburg, W. Va.
Morgantown High School.....Morgantown, W. Va.
Morris Harvey College.....Barboursville, W. Va.
Moundsville High School.....Moundsville, W. Va.
New Martinsville High School.....New Martinsville, W. Va.
Parkersburg High School.....Parkersburg, W. Va.
Pittsburg Central High School.....Pittsburg, Pa.
Ronceverte High School.....Ronceverte, W. Va.
Salem College.....Salem, W. Va.
Scottdale High School.....Scottdale, Pa.
Shinnston High School.....Shinnston, W. Va.
Sistersville High School.....Sistersville, W. Va.
State Normal School.....Athens, W. Va.
State Normal School.....Fairmont, W. Va.
State Normal School.....Glenville, W. Va.
State Normal School.....Huntington, W. Va.
State Normal School.....Shepherdstown, W. Va.
State Normal School.....West Liberty, W. Va.
Southwestern State Normal School.....California, Pa.
Tyler County High School.....Middlebourne, W. Va.
Uniontown High School.....Uniontown, Pa.
Wheeling High School.....Wheeling, W. Va.

RECOGNIZED PREPARATORY SCHOOLS

Recognized preparatory schools are those whose graduates have not had a sufficient number of credits to admit them to the freshmen class, but receive credit toward admission for the work certified.

Belington High School.....Belington, W. Va.
Benwood High School.....Benwood, W. Va.
Bramwell High School.....Bramwell, W. Va.
Bridgeport High School.....Bridgeport, W. Va.
Buckhannon High School.....Buckhannon, W. Va.
Charles Town High School.....Charles Town, W. Va.

Chester High School.....Chester, W. Va.
Claysville High School.....Claysville, Pa.
Davis High School.....Davis, W. Va.
Fairfax High School.....Thomas, W. Va.
Fayetteville District High School.....Oak Hill, W. Va.
Harrisville High School.....Harrisville, W. Va.
Kingwood High School.....Kingwood, W. Va.
McMechen High School.....McMechen, W. Va.
Mt. Wesley High School.....Berkeley Springs, W. Va.
New Cumberland High School.....New Cumberland, W. Va.
Pennsboro High School.....Pennsboro, W. Va.
Perryopolis High School.....Perryopolis, Pa.
Piedmont High School.....Piedmont, W. Va.
Point Pleasant High School.....Point Pleasant, W. Va.
Ravenswood High School.....Ravenswood, W. Va.
Richwood District High School.....Richwood, W. Va.
Salem High School.....Salem, W. Va.
St. Marys High School.....St. Marys, W. Va.
Spencer District High School.....Spencer, W. Va.
Sutton High School.....Sutton, W. Va.
Terra Alta High School.....Terra Alta, W. Va.
Weston High School.....Weston, W. Va.
Williams District High School.....Williamstown, W. Va.

SCOPE OF THE ENTRANCE REQUIREMENTS

The following description indicates the extent of preparation expected in each of the several subjects offered for entrance credit for admission to the various colleges of the University.

ENGLISH

Grammar and Elementary English.—No student will receive entrance credit in English whose work shows marked deficiency in spelling, punctuation, grammar, sentence structure, or paragraphing. The student should be prepared to state intelligibly the essential principles of English grammar and to explain the syntactical structure of any sentence encountered in his reading. An elementary text-book on grammar should have been completed before the student enters upon his high school course. For more advanced study of the subject and for practical review the material presented in the ordinary high school text-books on rhetoric may be utilized. The subject should be constantly reviewed in connection with the work in composition during the four years of the high school course.

Rhetoric and Composition.—Systematic practice in theme writing and other forms of oral and written composition with instruction in the principles of rhetoric and the forms of discourse must form an important part of each unit of English. At least one theme weekly should be required throughout the course. Students who are not able to express themselves in clear, correct, and idiomatic English will not be given full credit. The subjects upon which the student writes should not be drawn exclusively from literature. A considerable portion of them should be so distributed as to give proper training in the various forms of discourse.

The three units in English should include the following:

(a) One unit. English Classics and English Composition. The thorough study of at least five English classics selected from the list below. The simplest narrative classics, both prose and poetry, should be selected. The aim of the work should be to stimulate interest in good literature and to enable the student to form vivid mental pictures and to understand fully the thought expressed. The aim of the composition work should be to secure facility and accuracy. The work should include letter writing, short themes in narration and description, and study of paragraphing and sentence structure.*

*Reading of good literature outside of class and memorizing of notable passages in prose and verse should be required, but outside reading accompanied by written reports or reviews made according to a stereotyped model, in place of a thorough study of assigned lessons, class instruction and discussion will not be considered as satisfactorily fulfilling the requirement of any unit.

(b) **One unit. English Classics and English Composition.** Thorough study of five other English Classics. The work should include more complex forms of fiction and narrative poetry, simpler essays, and at least one of Shakespeare's plays. The aim should be to make a study of the form, structure, style, and purpose of the selection; the author's life; relation of the selection to its age and to other works of similar type. The work in composition should include themes of moderate length in all forms of discourse; study of unity, coherence, and emphasis in sentences and paragraphs; kinds of sentences; diction; figures of speech.

(c) One unit. Advanced study of Classics; Rhetoric. A thorough and intensive study of the form, structure, and style, of at least one typical example of the novel, the drama, the lyric or epic poem, and the essay. A study of the principles of rhetoric, employing some good advanced high school text-books, with frequent and systematic theme writing must form a part of this unit.

The following list of classics is suggested for reading and study:

For the first unit: Longfellow's Evangeline and Courtship of Miles Standish; Whittier's Snow Bound; Lowell's Vision of Sir Launfal; Coleridge's Rime of the Ancient Mariner; Macaulay's Lays of Ancient Rome; Goldsmith's Deserted Village; Irving's Sketch Book; Hawthorne's Twice Told Tales; Franklin's Autobiography; Aldrich's Story of a Bad Boy; Warner's Being a Boy, A Hunting of the Deer, etc., Burroughs's Sharp Eyes, Birds and Bees, etc.; Dickens' Christmas Carol; Stephenson's Treasure Island.

For the second unit: The Bible; Scott's Lady of the Lake, Marmion, Ivanhoe, Quentin Durward; George Eliot's Silas Marner; Goldsmith's Vicar of Wakefield; Mrs. Gaskell's Cranford; Cooper's Last of the Mohicans; Blackmore's Lorna Doone; Dickens' Tale of Two Cities, David Copperfield; Arnold's Sohrab and Rustum; Byron's Mazeppa and the Prisoner of Chillon; Shakespeare's Merchant of Venice, As You Like It, Julius Ceasar, Twelfth Night; Addison's De Coverly Papers; Thoreau's Succession of Forest Trees; Stevenson's Inland Voyage.

For the third unit: Novels: Thackeray's Henry Esmond; George Eliot's Silas Marner or Romola; Jane Austen's Pride and Prejudice; Hawthorne's House of Seven Gables. Dramas: Shakespeare's Macbeth, Lear, or Henry V. Poems: Tennyson's Idylls of the King; Milton's Shorter Poems; Browning's Selected Poems; Palgrave's Golden Treasury. Essays: Lamb's Essays of Elia; Emerson's Essays; Ruskin's Sesame and Lilies; Carlyle's Heroes and Hero Worship. Essay on Burns; Macaulay's Essay on Addison and Life of Johnson; Washington's Farewell Address; Webster's Bunker Hill Oration; Lincoln's Gettysburg Speech, etc.

LATIN

(a) One unit—Such knowledge of inflection and syntax as is given in any good preparatory Latin book, together with the ability to read easy selections from Caesar.

(b) One unit—Four books of Caesar's Gallic War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

(c) One unit—Six orations of Cicero. The ability to write simple Latin based on the text. The simpler historical references and the fundamental facts of Latin syntax.

(d) One unit—Six books of Virgil, with history and mythology. Scansion of hexameter verse. Two of the three prescribed units to be offered must be (a) and (b). Either (c) or (d) may be offered for the third unit, but one year of composition must be included.

GREEK

(a) One unit—Introductory lessons, elements of grammar; easy translations from the Anabasis; translations into Greek of easy continuous prose based upon the Anabasis.

(b) One unit—Xenophon—the first four books of the Anabasis.

(c) One unit—Homer—The first three books of the Iliad (omitting II-494 to end) and the Homeric constructions, forms, and prosody; constant practice in sight translation and prose composition.

GERMAN

(a) One unit—A thorough knowledge of elementary syntax; constant drill in pronunciation, oral translation, and composition; translation of seventy-five to one hundred pages; advanced syntax; composition throughout the year.

(b) One unit—Modern prose and familiar poems, two hundred pages; advanced syntax; intermediate composition throughout the year.

(c) One unit—Advanced prose, four hundred pages; advanced composition throughout the year.

FRENCH

(a) One unit—(1) The essential principles of French etymology and syntax, and especially, a thorough knowledge of the pronoun and of the regular and irregular verb; (2) ability to write in French, sentences of moderate difficulty; (3) the reading of from one hundred and fifty to two hundred pages of modern French prose; (4) ability to pronounce the language correctly and with some fluency.

(b) One unit—(1) Continued systematic study of French grammar, including syntax; (2) the reading of from three to four hundred pages of modern French; (3) the practice in writing from diction.

(c) One unit—(1) Twenty pages of advanced prose composition; (2) at least three hundred pages of modern French prose; (3) at least three hundred pages of modern French plays.

HISTORY

From one to three units may be offered, selected from the following:

(a) Ancient History to 800 A. D.—one unit.

(b) Mediaeval and Modern European History—one-half to one unit. The amount of credit will depend upon the time given to the subject.

(c) English History—one-half to one unit. The amount of credit will depend upon the time given.

(d) American History, or American History and Civics—one unit. The student should be familiar with the important events of the period of history which he offers for credit, and should have a clear knowledge of the general development.

A whole year that covers the whole field of general history with a good text-book and with notes on collateral reading and preparation of maps will be accepted as one unit, although it is believed that better results will be obtained by spending a whole year on ancient history and another year on the mediaeval and modern period.

American history and civics should be preceded by English history, and should not be given before the third year in the high school course, in case three years are given to history. Ancient history should be followed by English history in case mediaeval and modern history are not given.

The study of civics must not precede the study of American history; and, if studied as a separate branch following the course in American history, some advanced text such as Forman's Advanced Civics should be used. An outline knowledge of elementary civics, such as is presented in Forman's First Lessons in Civics, or in Peterman's Civics, is presupposed.

MATHEMATICS

(a) Algebra through quadratics—one unit. The four fundamental operations for rational algebraic expression; factoring, highest common factor, lowest common multiple, complex fractions, solution of equations of the first degree, radicals including the extraction of the square root of polynominals and numbers, fractional and negative exponents, quadratic equations, and equations containing one or more quadratic equations, and problems involving the use of such equations.

(b) Plane geometry—one unit. The completion of any standard text with original exercises and problems.

(c) Algebra—one-half unit. Review of essentials followed by ratio and proportion, the binominal theorem for positive and integral exponents, arithmetical and geometrical progressions.

(d) Solid geometry—one-half unit. Properties of straight lines and planes, dihedral and polyhedral angles, projections, polyhedrons, including prisms, pyramids, and the regular solids, cylinders, cones, and spheres, spherical triangles, measurements of surfaces and solids.

(e) Plane trigonometry—one-half unit. Definitions and relations of the six trigonometrical functions as ratios, proofs of important

formulae, theory, of logarithms and use of tables, solution of right and oblique plane triangles.

SCIENCE

(a) Physics—one unit. Credit will be given for one year's work with any standard text book, upon the presentation of a satisfactory note book, covering at least thirty-two experiments. The note book should contain the student's own record of his laboratory experiments and a signed statement from his teacher that the book is the original record of the student's observations. Students deficient in laboratory work may make up this deficiency in the University.

(b) Chemistry—one unit. Credit will be allowed for the completion in a satisfactory manner of any standard elementary text in inorganic chemistry, accompanied by indivdual laboratory work. A full year should be given to the work.

(c) Botany—one unit.

(b) Zoölogy—one unit.

Work in either botany or zoölogy, to be credited, must have been accompanied by individual laboratory work. The exact extent of the work which should be done cannot be stated here, but, for the maximum credit, it should be as much as a competent teacher, trained in laboratory methods, can accomplish in from one, to one and one-half years. In estimating the time employed, two hours of laboratory work will be counted as the equivalent of one recitation period. It will be necessary for applicants to present their laboratory notes and drawings.

In botany the class should cover the ground of Coulter's "A Text-Book in Botany," or Bergen's "Foundation of Botany," or their equivalent.

In zoölogy the class work should cover about what is represented in Kellogg's "Elementary Zoölogy" (Henry Holt), or in Parker and Haskell's Zoölogy, one-volume edition (Macmillan & Co.). The amount of laboratory work that should be done is somewhat less than is outlined in Scheffer's manual (Blakiston).

(e) Physical Geography—one-half unit.

(f) Physiology—one-half unit.

Credit for one-half unit each in physical geography and physiology will be allowed—as elective only—if taught in a scientific manner in an accredited or recognized secondary school. The use of a standard text should be supplemented by proper illustrative methods and proper observation. One-half year must be given to each subject.

DRAWING

One unit. To receive entrance credit in free hand drawing,

instruction should have been designed to give the student an intelligent and accurate conception of form, light, and shade, and the ability to express simply and directly, such objects as natural and geometrical form, still life, architectural details, and casts from nature, the antique, and life.

The training of the eye to observe with understanding, rather than the teaching of any particular method of expression, should be the aim of the instructor. No mechanical aids should be employed. The pencil is recommended as the simplest and most convenient medium for elementary work. It is desirable that students seeking credit for drawing shall submit their work in addition to their general certificate.

AGRICULTURE

One-half to one unit—A study of soils, plants, grasses, cereals, insects, farm animals, feeding, gardening, etc. The experimental and demonstration work should be equivalent to one full year of laboratory work. Standard texts for class work and for laboratory guides should be used.

TEACHER'S BUREAU OF INFORMATION

The Teachers' Bureau of Information, under the direction of the department of education, has for its aim:—

1. To keep a record of the students or alumni of the University who wish to teach, to gather information as to their academic and professional qualifications and personal fitness for school work, and to recommend for vacancies those who seem most likely to prove themselves efficient.

2. To keep a similar record of alumni who wish to be transferred to other positions.

3. To assist boards of education and other school officials in securing teachers, and to coöperate with teachers' agencies in placing graduates of the University.

Students desiring recommendation for positions as teachers should take at least twelve hours in education. Those desiring recommendation for a position in a normal school or as principal or superintendent of schools, should take at least twenty-four hours in education.

No student is assured a position. General letters of recommendation are not given to students. Information obtained from professors and others is regarded as confidential. No charge is made for any services rendered. Blanks for registration will be furnished on application. The following is the committee on recommendation: President Hodges, Dean Trotter, and Professor Deahl, secretary.

THE COLLEGE OF ARTS AND SCIENCES

THE FACULTY.

THOMAS EDWARD HODGES, LL.D., *President.*

FRANK BUTLER TROTTER, A.M., DEAN, *Professor of the Latin Language and Literature.*

DANIEL BOARDMAN PURINTON, LL.D., *President and Professor of Philosophy, Emeritus.*

JAMES SCOTT STEWART, M.S., *Professor of Mathematics, Emeritus*

POWELL BENTON REYNOLDS, D.D., *Professor of Economics and Sociology, Emeritus*

ALEXANDER REID WHITEHILL, PH.D., *Professor of Chemistry*

SAMUEL B. BROWN, A.M., *Professor of Geology and Mineralogy*

ROBERT ALLEN ARMSTRONG, L.H.D., *Professor of the English Language and Literature*

ALFRED JARRETT HARE, A.M., *Professor of the Latin Language and Literature*

FREDERICK WILSON TRUSCOTT, PH.D., *Professor of Germanic Languages and Literatures*

JOHN LEWIS SHELDON, PH.D., *Professor of Botany and Bacteriology*

JASPER NEWTON DEAHL, PH.D., *Professor of Education and Acting Head of the Department of Philosophy*

JAMES MORTON CALLAHAN, PH.D., *Professor of History and Political Science*

JOHN HARRINGTON COX, A.M., *Professor of English Philology*

FREDERICK LAWRENCE KORTRIGHT, D.SC., *Professor of Chemistry*

JOHN ARNDT EIESLAND, PH.D., *Professor of Mathematics*

ALBERT MOORE REESE, PH.D., *Professor of Zoology*

OLIVER PERRY CHITWOOD, PH.D., *Professor of European History*

C. EDMUND NEIL, A.B., *Professor of Public Speaking*

CHAUNCEY WILLIAM WAGGONER, PH.D, *Professor of Physics*

MADISON STATHERS, PH.D., *Professor of Romance Languages*

WAITMAN BARBE, LITT.D., *Professor of English*

LLOYD LOWNDES FRIEND, A.M., *Professor of Secondary Education*

ENOCH HOWARD VICKERS, A.M., *Professor of Economics and Sociology*

CHARLES EDWARD BISHOP, PH.D., *Professor of the Greek Language and Literature*

DEAS ARCHER, *Professor of Military Science and Tactics and Commandant of Cadets*

WILLIAM JACKSON LEONARD, *Associate Professor of Fine Arts*

SIMEON CONANT SMITH, A.M., *Associate Professor of Rhetoric*

ARLEIGH LEE DARBY, A.M., *Associate Professor of Latin and Italian*

JOSEPH ELLIS HODGSON, PH.D., *Associate Professor of Mathematics*

DAVID DALE JOHNSON, A.M., *Associate Professor of English*

DENNIS MARTIN WILLIS, LL.M., *Assistant Professor of Commerce*

RACHEL HARTSHORN COLWELL, A.M., *Assistant Professor of Home Economics*

LONNA DENNIS ARNETT, PHD., *Librarian and Instructor in Library Science*

BENJAMIN WALTER KING, *Assistant Professor of Economics*

CHARLES MOON, B. S. C. E., *Instructor of Physics*

FREDERICK ROST KOELZ, A.B., *Instructor in German*

WILLIAM PHILIP EDMUNDS, M.D., *Instructor in Physical Training and Director of the Gymnasium*

MARY BERTHA OLIVER, B.S., *Instructor in Home Economics and Director of Physical Training for Women*

ALEXANDER PARKS MOORE, A.B., *Instructor in Romance Languages*

SAMUEL JOHN MORRIS, M.D., *Instructor in Zoology*

FLORA RAY HAYES, A.B., *Instructor in Music*

DELFORD LEE COTTRILL, *Student Assistant in Botany*

JAMES EDWARD KENNEDY, *Student Assistant in Chemistry*

MARTIN LOXLEY BONAR, *Student Assistant in Chemistry*

IVAN VAUGHAN DETWEILER SHUNK, *Student Assistant in Botany*

ENTRANCE REQUIREMENTS.

For admission to the College of Arts and Sciences, the candidate must have credit for fifteen units, obtained by examination or on certificate from a duly accredited secondary school.

Of the fifteen units required for admission to the curricula leading to the degree of Bachelor of Arts, nine are definitely prescribed as follows:

		Units.
English		3
Latin		2
History		1
Mathematics—		
Algebra, 1 unit Plane geometry, 1 unit	Total	2
Science—		
Physics, Chemistry, Botany, or Zoology	Any one of the four	1
Total prescribed		9

The remaining six units must be chosen as electives from the following list:

	Units.
Latin	1 to 2
Greek	2 to 3
German	2 to 3
French	2 to 3
Mathematics—	
Algebra ½ unit Solid geometry, ½ unit Plane Trigonometry ½ unit	½ to 1½
History and Civics	½ to 2
Physics	1
Chemistry	1
Botany	½ to 1
Agriculture	½ to 1
Zoology	½ to 1
Physical Geography	½
Physiology	½
Drawing	½ to 1
Vocational Studies	½ to 2

A single unit of language will not be accepted unless further work in that language is taken in the University.

Credit for work in vocational studies must be approved by the committee on classification and grades in each individual case.

For admission to the curricula leading to the degree of Bachelor of Science the requirements are the same as the foregoing, except that a modern language may be substituted for the two units of Latin prescribed and an additional unit of mathematics is prescribed — one-half unit of algebra and one-half unit of solid geometry or plane trigonometry.

For a detailed statement of the amount of work required for each unit of entrance credit see page 42.

DEGREES.

BACCALAUREATE DEGREES

There are two baccalaureate degrees conferred in the College of Arts and Sciences:

1. The degree of Bachelor of Arts.
2. The degree of Bachelor of Science.

Amount of Work Required.

The "semester hour" is the standard for computing the amount of work required for graduation in the curricula leading to these degrees. The "hour" represents the amount of work done in one semester (eighteen weeks) in one recitation hour with two preparation hours a week. No student is permitted to register for less than fourteen hours or more than seventeen hours of work in any one semester.

A baccalaureate degree in the College of Arts and Sciences is conferred upon any student who satisfies all entrance requirements and secures credit for one hundred and twenty-eight semester hours selected in accordance with the following provisions.

Groups of Studies.

The subjects of study are arranged in three groups:

I. LANGUAGE: English, Latin, Greek, German, French, Spanish, Italian, Public Speaking.

II. SCIENCE: Mathematics and Astronomy, *Engineering, Physics, Chemistry, Geology, Botany, *Horticulture, *Forestry, *Agronomy, *Animal Husbandry, *Farm Management, Zoology, *Entomology,

Anatomy, Physiology, Bacteriology, Home Economics, *Military Science, *Physical Training.

III. PHILOSOPHY: Philosophy, Education, History, *Law, Political Science, Economics and Sociology, Commerce, *Music, *Fine Arts.

Subjects marked with a star cannot be chosen as major subjects for the A.B. and B.Sc. degrees.

General Requirements.

Major Subjects. At the beginning of the Sophomore year the student must select his major study from one of the above groups. The work required in the major is thirty hours in one subject or twenty hours in one subject and ten hours in another related subject.

The head of the department to which the major subject belongs becomes the student's class officer. (See page 28.) When the student has selected his major subject, he will not be permitted to change to another major without the consent of the committee on classification and grades.

Minor Subjects. Thirty hours of work in each of the two remaining (minor) groups is required. Less than six hours in any one subject will not be counted as part of the thirty hours required.

Required English. Six hours of rhetoric and composition (English 1 and 2) and four hours of English literature (English 26 and 27) are required of all candidates for degrees.

Special Requirements.

For the Degree of Bachelor of Arts.

(a) Languages:—

(1) Ancient language: If the student offers four units of Latin or of Latin and Greek, for entrance, ten hours of ancient language are required; if, however, he offers less than four units for entrance this requirement will be proportionately increased. The time may be divided between Latin and Greek at the option of the student, provided that not less than ten hours in a language be elected.

(2) Modern language: Ten hours in one modern language is required .

(b) Philosophy:—

Twelve hours; two out of the three following subjects or groups of subjects, are required: history, six hours; economics and sociology, six hours; philosophy and education, six hours.

(c) Science:—

Sixteen hours; two out of the three following subjects are required: mathematics, eight hours; physics or chemistry, eight hours; botany or zoology, eight hours.

For the Degree of Bachelor of Science.

(a) Language:—

If two units of Latin are offered, ten hours of French and twenty of German or ten hours of German and twenty of French are required; if either French or German is offered for entrance ten hours of the one offered and twenty of the one not offered are required; or if both languages are offered for entrance, ten hours of each are required.

(b) Science:—

Sixteen hours; two out of the three following subjects are required; mathematics, eight hours; physics or chemistry, eight hours; botany or zoology, eight hours.

(c) The major subject must be selected from the science group.

Elective Courses

The remaining work necessary to make up the total of one hundred and twenty-eight hours required may be selected from any of the courses offered in the College of Arts and Sciences. Work not to exceed fifteen hours in the College of Law or the College of Agriculture and not to exceed thirty hours in the College of Engineering may be included in the list of elective credits offered by students in the College of Arts and Sciences. The total number of hours elected from other colleges shall not, however, exceed thirty in all.

Classification of Students

To be classified as a freshman in the College of Arts and Sciences a student must have credit for at least thirteen units of entrance requirements; to be classified as a regular freshman he must have fulfilled all entrance requirements. To be classified as a sophomore he must have credit for twenty-five hours of college work; as a junior, fifty-eight hours; as a senior, ninety-two hours.

MASTER OF ARTS

The degree of Master of Arts is conferred upon graduates who have received the degree of Bachelor of Arts from West Virginia University or from another institution of equal grade, upon the following conditions:

1. The candidates must pursue studies in residence at this University for at least two semesters.

2. The application of the student to become a candidate for the degree of Master of Arts must be accompanied by the proper credentials and a general outline of the course of study.

3. If the application is accepted, the committee on classification and grades will appoint a sub-committee of three, consisting

of the candidate's major professor and two other professors, whose duties shall be:

(a) To arrange and approve a specific course of study
(b) To act as advisers
(c) To examine and pass upon the thesis
(d) To conduct the final oral examination

4. The candidate shall present thirty hours, and a thesis, or with the consent of the sub-committee seven additional hours may be substituted for the thesis; at least ten of the thirty hours shall belong to his major subject. In no case shall the aggregate of major work, graduate and undergraduate, be fewer than forty hours. The remainder of the student's work shall be in one or more related subjects.

5. The specific course of study must be presented to the committee on classification and grades within the first four weeks of the first semester.

6. If the candidate presents a thesis it shall show marked attainment in his major subject. The thesis shall be prepared under the direction of the head of the department in which the student has his major, and shall be submitted for the approval of the committee on classification and grades at least four weeks previous to the commencement day at which the degree is expected. The thesis shall be presented in such form as the committee on classification and grades shall prescribe and approve.

7. If the thesis is approved, two typewritten or printed copies shall be deposited in the University library at least one week before the degree is to be conferred.

8. The oral examination shall cover the thesis and the major courses pursued by the candidate, or such part thereof as the sub-committee shall deem desirable.

9. The committee on classification and grades shall set the time for the oral examination and shall appoint some one to represent them at the examination. The examination must be held at least three weeks before commencement day.

10. The sub-committee shall report their opinion of the thesis and the result of the examination to the committee on classification and grades at least ten days before commencement day.

11. No work done before the completion of the work for the A.B. degree will be credited toward the master's degree.

12. In case a student has failed to take a A.M. degree within two years after his course of study has been approved, his candidacy shall

lapse and can be renewed only upon a new application to the committee on classification and grades.

MASTER OF SCIENCE

The degree of Master of Science is conferred upon students whose baccalaureate degree has been in science, upon the same conditions as those governing candidates for the degree of Master of Arts, stated above.

DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is conferred upon Masters of Arts of West Virginia University, or holders of an equivalent degree, upon the following conditions:

1. Candidates must have spent at least two years in resident study at some university, and must be in residence at this University during the last two semesters before receiving the degree. The requirements of time, however, are wholly secondary. The degree will not be given for the completion of prescribed work, nor for study during a stated period, but only on the ground of long study and high attainments in one branch of learning.

2. The method of application, appointment of sub-committee, etc., shall be the same as for the degree of Master of Arts, described in sections 2 and 3 on page 53.

3. Candidates shall choose a major subject and cognate minor work. To the latter they shall devote not more than one-third of their time.

4. The candidate must prepare (under the direction of the head of the department in which he has his major) a dissertation which shall give evidence of his power of independent investigation, and shall be a real contribution to knowledge.

5. Not later than nine months before the date on which the candidate expects to receive the degree, he shall file with the committee on classification and grades the subject of his thesis, with the approval of his major professor, a full statement of his work in candidacy for the degree, and shall satisfy this committee of his ability to use French and German in his investigation.

6. The thesis shall be presented to the committee on classification and grades at least two months before the date on which the degree is expected. It shall be referred to a committee of three, one of whom shall be a person not connected with the University. If the thesis is

approved, the candidate shall proceed to an examination, which shall be conducted by the instructors in charge of his subjects, with the aid of the committee of three, the sub-committee and the committee on classification and grades. The date of the examination shall be determined by the committee on classification and grades.

7. If the candidate satisfactorily passes the examination he shall, before the receiving the degree, deposit with the librarian of the University a typewritten or printed copy of the thesis, but if the thesis cannot be published before the conferring of the degree the candidate must either furnish the committee on classification and grades evidence of completed arrangements for publication or deposit with the treasurer of the University a sufficient sum to cover the cost of publication in approved form. When the thesis is published one hundred copies shall be presented to the University library and the deposit made with the treasurer will be returned.

COURSES OF INSTRUCTION.

In the following announcements each course described counts for the number of hours in parenthesis after the name of the course. Whenever possible, the semester during which the course is given, the hour, the name of the instructor, and class room, are stated at the end of the announcement of each course. For convenience it is customary to designate the courses of study by the name of the department and the number of the particular course. Thus the course in psychology is known as "Philosophy 3"; the course in plane trigonometry is known as "Mathematics 4"; the course in electrical measurements is known as "Physics 10"; etc. The abbreviations used are: W., Woodburn Hall; S., Science Hall; M., Martin Hall; M. H. Mechanical Hall; C., Commencement Hall; A., Agricultural Building; S. F., South Fife Cottage; N. F., North Fife Cottage; G., Gymnasium; L., Library.

AGRONOMY AND ANIMAL HUSBANDRY

Credit will be given in the College of Arts and Sciences for course 1 and 2 in Agronomy and course 1 in Animal Husbandry in the College of Agriculture. See pages 166-8.

ANATOMY

For courses in this subject see page 97.

BOTANY AND BACTERIOLOGY

Professor SHELDON.

NOTE:—For description of botanical laboratory see page 22.

Botany 1 and 2 or an equivalent are prerequisites for all other courses in botany.

Students expecting to teach botany in the high schools are advised to take courses 1, 2, 5, 6, 12, and General Bacteriology.

Students will find it to their advantage to consult with the head of the department before registering for courses in botany and bacteriology.

Botany.

1. General Botany. (4 Hrs.) An introductory study of the cell is followed by the morphology and physiology of representative species of algæ and fungi.

First semester, W. F., 9:00; laboratory, M. W. or W. F., 2:00; N. F.

2. General Botany. (4 Hrs.) Continuation of Botany 1. Morphology and physiology of liverworts, mosses, ferns, and seeds plants.

Second semester, W. F., 9:00; laboratory, M. W. or W. F., 2:00; N. F.

5. Systematic Botany of Seed Plants. (3 to 5 Hrs.) Principles of classification of the more important families. Practice in description, identification, and classification.

Second semester, one class hour to be arranged; six to twelve hours of laboratory work in the herbarium or field; N. F.

6. Systematic Botany of Seed Plants. (3 to 5 Hrs.) Continuation of Botany 5.

First semester, one class hour to be arranged; six to twelve hours of laboratory work in the herbarium or field; N. F.

12. Plant Physiology. (3 Hrs.) A fundamental course on the relation of plant structure to stimulus and function.

First semester, Tu. Th., 10:00; laboratory, Tu. or Th., 2:00; N. F.

13. Plant Physiology. (3 Hrs.) Continuation of Botany 12.

Second semester, Tu. Th., 10:00; laboratory, Tu. or Th., 2:00; N. F.

14 Plant Pathology. (3 Hrs.) Botany 12 and 13 should precede or accompany courses in plant pathology. An elementary course on the development of plant pathology and the nature, causes, and control of the common diseases of economic plants.

First semester, F., 10:00; six hours work in the library, laboratory, or field; N. F.

15. Plant Pathology. (3 Hrs.) Continuation of Botany 14.

Second semester, F., 10:00; six hours work in the library, laboratory, or field; N. F.

Bacteriology.

1. General Bacteriology. (3 Hrs.) This course has been arranged for students who desire a general knowledge of the morphology and physiology of bacteria and a minimum training in cultural and microscopic technique.

Second semester, Tu. Th., 9:00; laboratory, Tu. or Th., 2:00; N. F.

CHEMISTRY

Professor WHITEHILL and Professor KORTRIGHT

NOTE:—For description of chemical laboratories see page 20.

1. Inorganic Chemistry. (4 Hrs.) Primarily for beginners, but students who have offered elementary chemistry for entrance credit may take the course and receive credit on their college work. The course includes a systematic study of the laws of chemical combinations; the source, preparation, properties and compounds of the non-metallic elements and the theories and laws of chemical operations. Experimental lectures, recitations and laboratory work.

First semester, first section, M. W. F., 9:00; Professor WHITEHILL, 20 S.; second section, M. W. F., 11:00; Professor WHITEHILL, 20 S. Laboratory, first section, M., 2:00; second section, T., 2:00; third section, W., 2:00; Professor WHITEHILL, and assistants, 21 and 22 S.

2. Inorganic Chemistry. (4 Hrs.) Continuation of Chemistry 1. This course includes the study of the metallic elements and special attention is paid to the applications of chemistry to agriculture, engineering, medicine and every-day life. Experimental lectures, recitations and laboratory work.

Second semester, first section, M. W. F., 9:00; Professor WHITEHILL, 20 S.; second section, M. W. F., 11:00; Professor WHITEHILL, 20 S. Laboratory, first section, M., 2:00; second section, T., 2:00; third section, W., 2:00; Professor WHITEHILL, and assistants, 21 and 22 S.

3. Organic Chemistry. (2 Hrs.) This course is open to students who have completed any standard elementary text in inorganic chemistry, accompanied by individual laboratory work. It is also open to students who have completed Inorganic Chemistry 1 and are taking Inorganic Chemistry 2 in the same semester. The course includes the study of the more important organic compounds, especially those which have a wide technical application and those which are familiar in the operations of daily life. Experimental lectures, recitations and laboratory work.

Second semester, T., Th., 9:00; Professor WHITEHILL, 20 S.

4. Qualitative Analysis. (2 Hrs.) Required of all candidates for engineering degrees. Continuation of Chemistry 2. This is a course treating of those properties which are of importance in the separation and identification of the common metals and acids. In addition to the work in the laboratory there are lectures and recitations in which chemical reactions are studied from the point of view of the mass law and the theory of electrolytic dissociation.

First semester, T., Th., 2:00-4:00; Professor KORTRIGHT, 23 S.

5. Qualitative Analysis. (4 Hrs.) For students in the College of Arts and Sciences and in the College of Agriculture. Continuation of Chemistry 2. A course similar in its general nature to Chemistry 4, but more extended.

First semester, M., 2:00; laboratory, W. F., 2:00-5:00; Professor KORTRIGHT, 23 S.

6. Quantitative Analysis. (5 Hrs. For mining engineering students, 2 Hrs.) A course treating of the elementary principles of gravimetric and volumetric analysis.

Second semester, M., 2:00; laboratory, T. W. Th. F., 2:00-5:00; Professor KORTRIGHT, 23 S.

7. Quantitative Analysis. (4 Hrs.) Continuation of Chemistry 6. In this course more difficult analyses will be made and such substances as limestone, coal, boiler water, etc., will be examined.

First semester T., W., Th., F., 2:00-5:00; Professor KORTRIGHT, 32 S.

8. Organic Quantitative Analysis. (5 Hrs.) This course treats of the analysis of food stuffs, beverages, etc. Prerequisite; Chemistry 3, 5 and 6.

Second semester, 2:00-5:00; Professor KORTRIGHT, S.

9. Medical Organic Chemistry. (5 Hrs.) Required of medical students. Prerequisite: Chemistry 1, 2 and 3.

First semester, 10:00-12:00; Professor KORTRIGHT.

10. Medical Analysis. (5 Hrs.) Required of medical students. Continuation of Chemistry 9.

Second semester, 10:00-12:00; Professor KORTRIGHT.

11. Quantitative Analysis. (2 Hrs.) Required of all students who select chemistry as their major subject. The course includes practice in the analysis of iron and steel, iron ores, limestone, sand, clay and other materials usually brought to the laboratory of an iron and steel works.

First semester, T., Th., hours to be arranged; Professor WHITEHILL, 21 S.

12. Quantitative Analysis. (2 Hrs.) Continuation of the same line of work as indicated in course 11.

Second semester, T., Th., hours to be arranged; Professor WHITEHILL, 21 S.

13. Chemical Preparations. (2 Hrs.) This course will include the preparation of some of the more important inorganic and organic compounds. Quantitative work in the verification of chem-

ical laws will be undertaken, and the work will be made as fully illustrative of laboratory processes as possible. The course is designed to meet the requirements of students who wish to take advanced work in general chemistry, or who wish to become teachers of the science. Prerequisite: Chemistry 1 and 2 or their equivalent.

First semester, T., Th., 2:00; Professor WHITEHILL, 21 S.

14. Chemical Calculations. (2 Hrs.) This course is designed for students who wish to study the mathematical principles which are involved in chemical operations. It will include the consideration of questions involving weight and volume reactions, atomic and molecular weight determinations, the methods of calculating the results of analyses and the various other computations of importance to the student of chemistry. Prerequisite: Chemistry 1 and 2 or their equivalent.

Second semester, T., Th., 2:00; Professor WHITEHILL, 21 S.

15. Special Work. Chemistry offers a wide field for study and investigation. Special work in any of the various departments of the science may be taken in the laboratory under the direction of the instructors, and credit will be given in proportion to the amount of work accomplished.

CIVIL ENGINEERING

Credit not to exceed thirty hours will be given in the College of Arts and Sciences for certain courses in this subject given in the College of Engineering. See page 131.

COMMERCE

Assistant Professor WILLIS and Assistant Professor KING

1. Special Accounting. (3 Hrs.) Required of all students who make commerce their major. A theoretical course in keeping the accounts in special lines of business. The object of this course is to familiarize the student with nomenclatures of the various lines of business, and to furnish him with a practical working knowledge of the special accounts necessary to handle the specific lines of trade.

First semester; T. Th., 10:00; second semester; T. Th., 10:00; laboratory, hours to be arranged; Professor WILLIS, 12 M.

2. Materials of Commerce. (3 Hrs.) A description of the surface of the earth, with special reference to the production, manufacture, transportation and exchange of articles of trade. A general outline of the countries of the world; soil, climate, agricultural products, forests, manufactories, quarries, mines, centers of industry,

foreign relations, ways of communication, social relations and conditions, imports, exports and markets.

First semester; M. W. F., 11:00; Professor WILLIS, 12 M.

3. Special Cost Accounting. (3 Hrs.) Accounting necessary to obtain at any time the exact cost of articles produced by the manufacturer; the origin and cost of raw material; record of stock on hand, and consumption in process of manufacture; comprising purchase record and invoice system, freight distribution, stock and store room systems and records, the various methods by which material is transferred from stock to the process of manufacturing, perpetual inventories, requisitions, etc.

Second semester: M. W. F., 11:00; laboratory, hours to be arranged; Professor WILLIS, 12 M.

4. Corporation Administration. (3 Hrs.) A course presenting the accounting necessary in the formation of a corporation and its operation. The records of the secretary of the corporation and the accounts growing out of the minutes, etc.; the accounts affected by the issuing of installment certificates of stock, by their transfer, by their surrender, by the issuing of stocks, and of additional stocks, by dividends, by changes from partnerships into corporations, etc.; methods of preparing financial statements for publication.

First semester: T. Th., 11:00; laboratory, hours to be arranged; Professor WILLIS, 12 M.

6. Corporation Finance. (3 Hrs.) An exposition of the financial organization and conduct of large corporations; the accounting necessary in railroad and industrial combinations and mergers; a review of the laws and the customs that govern the financial management of foreign corporations.

First semester; M. W. F., 9:00; Professor WILLIS, 12 M.

7. Auditing. (2 Hrs.) The course is based on an assumed knowledge of accounts both as an art and as a science. The student passes naturally from a study of practical accounts and the theory of accounts to that of professional examinations and oversight. The study is conducted from the standpoint of traveling or assistant auditor, or that of the expert accountant. Special attention is given to reports of auditors and finance committees of states, corporations, and municipalities, etc.

Second semester; M. W. F., 9:00; Professor WILLIS. 12 M.

8. Practical Banking. (3 Hrs.) The object of this course is to give the student a comprehensive knowledge of the inside workings of a bank, and of the laws regulating national and state banks. The subjects treated are deposits, duties of depositors; reserves,

loans and discounts; circulating notes, credit and commercial paper; accommodation paper; checks and bills of exchange; branch banking; the duties of officers and clerks; the liabilities of directors and stockholders, and bank management in general. Prerequisite: Commerce 1.

First semester; M. F., 10:00; laboratory, hours to be arranged; Professor WILLIS, 12 M.

9. Accounting Procedure. (3 Hrs.) Required of all students who make commerce their major. Installation of accounting systems; theory of accounts and its adaptablity to practical work; books of original entry, their connection with the general scheme of business; depreciation of current assets and working capital; statements prepared for establishing a commercial rating and credit; a consideration of personal and impersonal accounts; the best methods of combining for quick and accurate consideration of the condition of the business, etc.

First semester; T. Th., 9:00; second semester; M. F., 10:00; laboratory, hours to be arranged; Professor WILLIS, 12 M.

10. Bank and Trust Company Administration. (2 Hrs.)

This course furnishes a complete exposition of all the methods of accounting which relate principally to banks and modern trust companies. In connection with the lectures in this course, blanks and forms collected from the best regulated banks and trust companies in the country are examined by students. Prerequisite: Commerce 8.

Second semester; T. Th., 9:00; Professor WILLIS, 12 M.

11. Executors and Trustees. (2 Hrs.) Designed especially for students in the College of Law. This course exhibits the best methods for financial reports of executors and trustees, receivers, etc., and the legal rights and duties of trustees and executors so far as they relate to accounting.

Second semester; T. Th., 11:00; Professor WILLIS, 12 M.

13. Secretarial Studies. (3 Hrs.) A series of studies designed for students who may desire to prepare for secretarial positions, or for those who are likely either to have offices of their own or to be entrusted with the management of other offices. The student is given stenographic exercises and is instructed in the most recently approved methods of office management and administration. Lectures, recitations and laboratory work.

First semester: M. W. F., 11:00; laboratory, hours to be arranged; Professor KING, 18 M.

14. Secretarial Studies. (2 Hrs.) Continuation of Commerce 13. Lectures, recitations and laboratory work.

Second semester; T., Th., 10:00; laboratory, hours to be arranged; Professor KING, 18 M.

17. Property Insurance. (3 Hrs.) An investigation of the historical, economical, and legal aspects of fire, marine, fidelity, title and credit insurance; the rules governing such insurance and their interpretation; adjustments of losses, etc.

First semester; M. W. F., 8:00; Professor KING, 18 M.

ECONOMICS AND SOCIOLOGY

Professor VICKERS and Assistant Professor KING

Instruction in this department is designed to meet three special needs of students: (1) Training for individual efficiency in getting a living under present economic and social conditions; (2) training which will enable them to understand the existing economic and social order—whence arise many urgent problems of the time—and intelligently to discharge their duties as citizens; (3) training to prepare those so electing to continue advanced study and specialization in economics and sociology.

Economics 1 will be helpful to students in all other courses in the department. It is a prerequisite for all students in Economics 2 and 3, and for others than juniors, seniors and graduates in Economics 4 and 11. Courses in sociology should, if practicable, be deferred to the junior and senior years.

Economics

1. Principles of Economics. (5 Hrs.) For all students desiring foundation training in economics, whether as preparation for advanced courses of study or for intelligent grasp of actual economic conditions and problems. General course on fundamental principles governing consumption, production, distribution and exchange of wealth.

First semester; 8:00; Professor VICKERS, 14 S.

2. Distribution of Wealth. (3 Hrs.) Considers actual apportionment of wealth among the several classes of society. Special attention given to effects of competition, monopoly, combinations of capital and labor, government regulation, methods of economic organization. Prerequisite: Economics 1.

Second semester; M. W. F., 8:00; Professor VICKERS, 14 S.

3. History of Economic Thought. (2 Hrs.) Traces the development of economic theories from antiquity to the present time. Causes, nature and effects of change in theory, also relations between economic theories and economic and political institutions, sought out. Prerequisite: Economics 1. (Omitted 1913-14).

First semester; T. Th., 9:00; Professor VICKERS, 14 S.

4. Relations of Government to Economic Enterprise. (2 Hrs.) This course considers the functions of government, both state and municipal, in relation to economic enterprises; conditions requiring government action; principles and expediency of government regulation and of government ownership; methods adopted and results obtained for typical enterprises in this and other countries. Prerequisite: consent of instructor.

First semester; T. Th., 9:00; Professor VICKERS, 14 S.

5. Money, Credit and Banking. (3 Hrs.) Treats the nature and functions of money; nature and uses of credit; functions of banks and principles of banking as revealed in the banking systems of leading countries.

First semester; M. W. F., hours to be arranged; Professor KING, 18 M.

6. Public Finance. (4 Hrs.) Treats principles governing expenditures of modern governments; sources of revenue; principles and methods of taxation; requirements of an adequate tax system; uses of public credit; principles and methods of financial administration as revealed in fiscal systems of leading countries.

Second semester; T. W. Th. F., 9:00; Professor VICKERS, 14 S.

7. Transportation. (3 Hrs.) Designed especially for students in commerce or for others who may be interested in economic subjects. A study of the various transportation systems of the United States from a historical and economic standpoint, with special reference to the railway and its importance in the development of our internal commerce. Considerable time is devoted to a study of rate-making, federal and state regulation and the functions of the Interstate Commerce Commission. Lectures and recitations.

First semester; M. W. F., 9:00; Professor KING, 18 M.

8. Transportation. (3 Hrs.) Continuation of Course 7. A study of the transportation systems of the United States from a historical and economic standpoint, with special reference to water transport; the status of our inland water transportation; the international importance of the Panama Canal; and the position of American shipping in the world's commerce. Lectures and recitations.

Second semester; M. W. F., 9:00; Professor KING, 18 M.

9. History of Commerce. (3 Hrs.) History of commerce; methods of exchange in ancient times; shipping of the ancients; fairs and markets; results of maritime discoveries; changing the commercial routes; international treaties affecting commerce; scientific and industrial discoveries affecting commerce; trade restrictions; boards of trade; stock and produce exchanges; circulation of commodities between cities and countries; trade statistics.

Second semester; M. W. F., 11:00; Professor KING, 18 M.

10. International Trade Policies. (3 Hrs.) Nature, advantages and relative importance of trade between nations. Protective and revenue tariffs in theory and in the practice of leading nations. Special attention to policies—historical and actual—of the United States. Prerequisite: Economics 1 or equivalent.

First semester; M. W. F., 9:00; Professor VICKERS, 14 S.

11. Labor Problems. (3 Hrs.) Treats the origin and nature of labor problems, methods and agencies of amelioration and reform; woman and child labor, sweating, immigration, unemployment; labor legislation, conciliation, arbitration; coöperation, profit-sharing, insurance, industrial education. Prerequisite: Economics 1, or consent of instructor.

Second semester; M. W. F., 11:00; Professor VICKERS, 14 S.

Sociology

1. Elements of Sociology. (4 Hrs.) A study of the origin and nature of societal forces; how they operate selection and change, determine customs, give form to such fundamental institutions as language, religion, property, government, marriage, and differentiate social classes and groups.

First semester; M .T. Th. F., 10:00; Professor VICKERS, 14 S.

2. Social Structure and Functions. (3 Hrs.) A study of the anatomy and physiology of existing society; social elements, organs and institutions; their mutual relations, actions; reactions and resulting conditions.

Second semester; M. T. Th., 10:00; Professor VICKERS, 14 S.

3. Social Pathology. (2 Hrs.) Deals with defective, dependent and delinquent classes and resultant problems of charity, pauperism, crime. Investigates causes, palliatives, preventives; also methods of organization and administration.

Second semester; T. Th., 8:00; Professor VICKERS, 14 S.

NOTE:—For course in rural economics see page 172.

EDUCATION

Professor DEAHL

The courses offered in this department aim to contribute to the educational influences and to the professional efficiency of the schools of the state in the following ways: 1. To interest those students who may without intending to use the knowledge in teaching desire to study the science of education as a part of their general culture. 2. To afford university students who wish to teach for a time after graduation the means of professional training commensurate with their academic training. 3. To furnish appropriate professional education to University students, and to any experienced teachers of suitable age and the attainments, who may desire to fit themselves for teachers, principals, or superintendents of schools.

Students who elect education as their major are urged to do sufficient work in some one department to prepare them to teach a particular subject, as English, physics, mathematics, etc.

1. History of Education, Ancient and Mediaeval. (3 Hrs.) A study in the evolution of ideas and of education ideals; education as a social factor in the development of civilization. A brief study of some one Oriental system such as the Chinese, Hebrew, or Egyptian education; the forces and ideas and ideals that fashioned ancient education—social bonds, individualism, reason, moral freedom, etc.; the development of the Christian schools, moslem education, the seven liberal arts, monasticism, scholasticism, rise of universities, the renaissance and reformation, teaching organizations.

First semester; M. W. F., 9:00; 17 W.

2. History of Education, Modern. (3 Hrs.) A study in the development of education since the reformation. The development of modern educational theory—(a) the humanistic, (b) the realistic, (c) the scientific; physiological, psychological, and sociological ideas of education; the development of modern national, state, and city systems and of modern programs of studies and of methods.

Second semester; M. W. F., 9:00; 17 W.

3. Modern Educational Theory. (2 Hrs.) The purpose of this course is to trace the development of modern educational thought to the present time. A summary of the theory and practice of mediæval education will be followed by a study of the educational doctrines as found in the lives and writings of Pestalozzi, Herbart, Froebel, and other reformers.

Second semester, T. Th., 9:00; 17 W.

4. Philosophy and Education. (3 Hrs.) This course aims to lay the basis of a scientific theory of education. The process of education is explained from the standpoint of the doctrine of evolution; the principles thus arrived at are applied from the standpoint of the history of civilization, the developing powers of the child, and the cultivation of individual and social efficiency.

First semester; M. W. F., 11:00; 17 W.

5. Philosophy of Education. (3 Hrs.) A continuation of course 4.

Second semester; M. W. F., 11:00; 17 W.

6. School Administration and Supervision. (2 or 3 Hrs.) This course is intended primarily for principals and superintendents of schools, and for those who are preparing for such school work. The course deals with such topics as: school boards, school buildings and grounds, school equipment, the preparation of principals and superintendents, the preparation of teachers, the selection and promotion of teachers, city and rural supervision, examinations and tests, grading and promoting pupils, etc.

Second semester; T. Th., 10:00; 17 W.

7. School Administration and Supervision. (2 or 3 Hrs.) Continuation of course 6. Business and educational administration of schools, the school system and the school, the functions of the superintendent and of the principal, the improvement of teachers and teaching, the teachers' meeting, institutes and associations, lesson plans, progress books and reports, the program of studies in elementary and in secondary schools, school government and pupil government, the selection of books and the use of libraries, estimating teaching and the standard of school work, etc. (Omitted 1913-14.)

Second semester; T. Th., 10:00; 17 W.

8. Foreign School Systems. (3 Hrs.) The purpose of this course is to make a comparative study of the school systems of France and Germany, together with special features of other continental systems. The practical problems will be examined from the standpoint of American education. (Omitted in 1913-14.)

Second semester; hours to be arranged; 17 W.

9. School Systems, British and American. (3 Hrs.) This course deals with the development and present status of education in

England, Scotland, Canada, and the United States. The practical workings of the systems will be emphasized.

First semester; hours to be arranged; 17 W.

NOTE: Courses 8 and 9 will not be given unless the number of students desiring them is considered sufficient by the instructor in charge.

10. The Principles and Art of Teaching. (2 Hrs.) Required of all students who are candidates for recommendation for teachers' certificates. The aim of this course is to find a scientific method of learning and teaching and to determine the essential elements of teaching. Students will formulate and discuss lesson plans, do observation work, and teach regular classes, observe, so far as conditions will permit, lessons given by regular teachers, and report the same in class. Prerequisites: Education 12 or 17, and Education 4 and 5.

Second semester; T. Th., 11:00; 17 W.

11. Criticism and Supervision of Instruction. (2 or 3 Hrs.) This course is planned for teachers, supervisors, principals, and superintendents of schools. It will make an intensive study and application of some fundamental principles of education in both method and program of studies. Lessons will be planned and then taught with a class of pupils in the public schools of Morgantown. The lessons thus taught will be discussed in conference. The course will afford an opportunity for observation of lessons, practice teaching, and the supervision of instruction.

First semester; T. Th., hours to be arranged; 17 W.

12. Psychology in Learning and Teaching. (3 Hrs.) This course will present the principles that control rational learning and successful teaching as far as such principles may be derived from psychological laws. A number of psychological topics—the senses, sensation, perception, memory, imagination, reason, association of ideas, apperception, interest and attention, mental development, will, habit, and character—will be studied.

Second semester; M. W. F., 8:00; 17 W.

13. Seminar. (3 Hrs.) The program of studies in elementary school .

First semester; T. Th., hours to be arranged; 17 W.

14. Seminar. (3 Hrs.) High schools and secondary education.

First semester; T. Th., hours to be arranged; 17 W.

NOTE:—Courses 13 and 14 will not both be given in the same year.

15. Seminar. (2 Hrs.) The rural school—its function; program of studies; state, county, and district supervision.

Second semester; T. Th., 8:00; 17 W.

16. Agricultural Education. (2 Hrs.) Candidates for recommendation for a teacher's certificate who are registered in the College of Agriculture must take this course in place of course 10 in their senior year. (See announcements of College of Agriculture, page 166.) Nature study and agriculture in the elementary and secondary schools. Organization of programs of studies and the principles and methods of teaching. Observation of elementary and secondary classes in nature study and agriculture. Lectures and recitations, reading of literature,

Second semester; T. Th., Professor ————, 11:00; 27 M.

17. Principles of Study. (3 Hrs.) Primarily for freshmen and sophomores. This course aims to present the principles of economic and successful study in such a manner as to aid college students in their studies as well as teachers in directing the study of the pupils in school. The function and relation of observing, thinking, reasoning, and memorizing in study will be emphasized .

First semester: M. W. F., 8:00; 17 W.

ENGLISH

Professor ARMSTRONG, Professor COX, Professor BARBE, Associate Professor SMITH, and Associate Professor JOHNSON.

Rhetoric

A. English. A four-hour course for which no college credit is given, intended primarily for students who have entered with a condition in English or who have not made a satisfactory record in the courses regularly required of freshmen. A thorough survey and review of elementary rhetoric with frequent themes and other exercises in composition; reading and study of several representative English classics.

First semester; M. T. Th. F. 10:00; Professor JOHNSON, 24 W.

B. English. A continuation of course A. No college credit.

Second semester; M. T. Th. F. 10:00; Professor JOHNSON, 24 W.

1. Composition and Rhetoric. (3 Hrs.) Primarily for freshmen. Required of all candidates for the bachelor's degrees in all the colleges. Two themes weekly, conferences, recitations on textbook, class criticism of written exercises, lectures. This course is designed to be taken in conjunction with English 26.

First semester; section 1 (Open only to students in the College of Engineering), M. W. Th., 8:00; Professor JOHNSON, 24 W.

Section 2 (Open only to students in the College of Engineering), T. W. F., 8:00; Professor JOHNSON, 24 W.

Section 3; M. W. F., 9:00; Professor SMITH, 13 W.

Section 4; M. W. F., 9:00; Professor BARBE, L.

Section 5; M. W. F., 11:00; Professor SMITH, 13 W.

Section 6; M. W. F., 11:00; Professor BARBE, L.

Section 7; M. W. F., 8:00; Professor COX, 32 W.

2. Composition and Rhetoric. (3 Hrs.) Primarily for freshmen. Required of all candidates for the bachelor's degrees in all the colleges. A continuation of course 1 with more attention to rules and principles. Two themes weekly; study of prose masterpieces as models of style and as material for themes; conferences, recitations, class criticism of written exercises, lectures.

Second semester; section 1 (Open only to students in the College of Engineering); M. W. Th., 8:00; Professor JOHNSON, 24 W.

Section 2 (Open only to students in the College of Engineering); T. W. F., 8:00; Professor JOHNSON, 24 W.

Section 3; M. W. F., 8:00; Professor SMITH, 13 W.

Section 4; M. W. F., 9:00; Professor JOHNSON, 10 M.

Section 5; M. W. F., 11:00; Professor BARBE, L.

Section 6; M. W. F., 11:00; Professor SMITH, 13 W.

Section 7; M. W. F., 9:00; Professor BARBE, L.

3. Exposition. (2 Hrs.) Study of principles; analysis of masterpieces of exposition, both literary and scientific; themes.

First semester; T. Th., 9:00; Professor JOHNSON, 10 M.

4. Argumentation. (2 Hrs.) A study of general principles and of specimens; outlines and exercises. Required of all who make English their major. Course 3 may be substituted for course 4.

Second semester; T. Th., 9:00; Professor JOHNSON, 24 W.

5. Composition. (3 Hrs.) An advanced course. Special attention to practical forms of composition and to methods of teaching the subject in the high school. Themes and written exercises.

First semester; M. W. F., 11:00; Professor JOHNSON, 24 W.

6. Description and Narration. (3 Hrs.) A study of general principles with exercises.

Second semester; M. T. Th., 10:00; Professor SMITH, 13 W.

7. The Essay. (2 Hrs.) Study of the principles underlying the structure of the essay, with constant practice in their application.
Second semester; T. Th., 11:00; Professor SMITH, 13 W.

8. The Short Story. (3 Hrs.) Study of the short-story as a form of literary expression, with the object of writing original short stories; constant practice in writing. (Omitted in 1913-14).

Second semester; M. W. F., 9:00; Professor BARBE, L.

9. Style. (2 Hrs.) A study of the principles and elements of style; practice to develop an artistic sense in the writing of English prose.

First semester; T. Th., 11:00; Professor SMITH, 13 W.

10. The Letter. (3 Hrs.) Some great writers seen in their letters. A study of their use of this form of composition. Practice in writing.

First semester; M .T. Th., 10:00; Professor SMITH, 13 W.

English Language and Literature

The aims of this division of English are; (a) a scientific knowledge of the origin and development of the English language; (b) a general acquaintance with English literature; (c) a specific knowledge of certain great authors, periods, and movements in English literature.

20. Old English. (3 Hrs.) Not open to freshmen. Required of all students who make English their major. Bright's Anglo-Saxon Reader; the essentials of Anglo-Saxon grammar; translations.

First semester; M. W. F., 9:00; Professor Cox, 32 W.

21. Old English. Beowulf. (3 Hrs.) Translation, with due attention to text, meter, literary history, etc. Prerequisite: English 20.

Second semester; M. W. F., 8:00; Professor Cox, 32 W.

22. Early Middle English. (2 Hrs.) Changes in the language. Critical reading of early middle English texts.

First semester; T. Th., 8:00; Professor Cox, 32 W.

23. The English Language. (2 Hrs.) This course presents a general survey of the history of the English language. It will

include a study of the sources of our vocabulary; the growth of the literary language; slang and legitimate speech; euphemism; folk-etymology; transference of meaning; the romance of words. (Omitted in 1913-14).

First semester; T. Th., 8:00; Professor Cox, 32 W.

24. Chaucer. The Canterbury Tales. (3 Hrs.) Required of all students who make English their major. During the first part of the semester the work will be chiefly linguistic, with interpretation of passages. The latter part of the semester will be devoted to a somewhat rapid reading, with such consideration of form, sources, etc., as are necessary to a clear understanding of what is read.

Second semester; M. W. F., 9:00; Professor Cox, 32 W.

25. Shakespeare. (3 Hrs.) A critical study of three of Shakespeare's plays: Hamlet, Henry IV, Part I, and Henry V. Special attention will be given to exact interpretation and to those peculiarities of language in which Shakespearean usage differs from our own.

First semester; M. W. F., 11:00; Professor Cox, 32 W.

26. General Survey of English Literature. (2 Hrs.) Primarily for freshmen. Required of candidates for degrees. This course includes a historical view of English literature from its beginnings to the eighteenth century, and a close, critical study of a few classics from each of the great periods of literary development. The schedule is so arranged that this course can be taken in connection with English 1, in order to make up the five hours of freshman English required in the first semester.

First semester; section 1; T. Th., 9:00; Professor ARMSTRONG, 31 W.

Section 2; T. Th., 9:00; Professor Cox, 32 W.

Section 3; T. Th., 11:00; Professor ARMSTRONG, 31 W.

Section 4; T. Th., 8:00; Professor BARBE, L.

27. General Survey of English Literature. (2 Hrs.) Primarily for freshmen. Required of candidates for degrees. A continuation of English 26. The course is a survey of English literature in the eighteenth and nineteenth centuries. Prerequisite: English 1. The schedule is so arranged that this course can be taken in connection with English 2, in order to make up the five hours of freshman English required in the second semester.

Second semester: Section 1; T. Th., 9:00; Professor Cox, 32 W.

Section 2; T. Th., 9:00; Professor ARMSTRONG, 31 W.

Section 3; T. Th., 11:00; Professor BARBE, L.

Section 4; T. Th., 8:00; Professor ARMSTRONG, 31 W.

28. Shakespeare. (4 Hrs.) One play will be studied closely and critically, and a number of others will be read with attention to characters, plot development, and general literary interpretation.

Second semester: M. T. Th. F., 10:00; Professor ARMSTRONG, 31 W.

29. Milton. (2 Hrs.) This course will consider Milton's poems and the Areopagitica. Interpretation of passages; consideration of forms, sources, style, etc.; lectures.

Second semester; T. Th., 8:00; Professor Cox, 32 W.

30. The Elizabethan Period. (2 Hrs.) From Tottel's Miscellany to the death of Spenser (1557-1599). The authors studied are Wyatt, Surrey, Ascham, Lyly, Sidney, Marlowe, and Spenser. Special attention will be given to Spenser. (Omitted in 1913-14).

Second semester: T. Th., 8:00; Professor Cox, 32 W.

31. The Queen Anne Period. (3 Hrs.) The course will deal with those writers who are specially representative of the classical spirit in English literature. The authors studied are Dryden, Swift, Addison, Steel, DeFoe, Pope, and Gay.

First semester: M. W. F., 11:00; Professor Cox, 32 W.

32. English Literature. (3 Hrs.) From the death of Swift to the publication of the Lyrical Ballads (1745-1798). The authors studied are Gray, Collins, Johnson, Goldsmith, Cowper, Sheridan, Burke, Burns, and Blake, with some attention to lesser authors.

First semester: M. W. F., 8:00; Professor BARBE, L.

33. English Literature. (3 Hrs.) From the publication of the Lyrical Ballads to the death of Scott (1798-1832). The authors studied are Wordsworth, Byron, Shelley, Keats, and Scott. (Omitted in 1913-14).

Second semester: M. W. F., 9:00; Professor ARMSTRONG, 31 W.

34. English Literature. (3 Hrs.) From the death of Scott to the death of Tennyson (1832-1892)—the poets. The chief authors studied are Tennyson, Browning, Arnold, Swinburne, Rossetti, and Morris.

Second semester: M. W. F., 8:00; Professor ARMSTRONG, 31 W.

35. English Literature. (3 Hrs.) Prose writers since 1832. The chief authors studied are Carlyle, Ruskin, Dickens, Thackeray, George Eliot, and Stevenson. (Omitted in 1913-14).

First semester: M. W. F., 11:00; Professor ARMSTRONG, 31 W.

36. The English Old Testament. (4 Hrs.) Required of all students who make English their major. A study of the Old Testament in English as literature; discussion of its literary forms and interpretation of some of its masterpieces.

First semester: M. T. Th. F., 10:00; Professor ARMSTRONG, 31 W.

37. The English New Testament. (2 Hrs.) A study of the New Testament in English as literature. All the books will be read and a few studied with attention to literary form and interpretation. (Omitted in 1913-14).

Second semester: T. Th., 8:00; Professor ARMSTRONG, 31 W.

38. The Short Story. (3 Hrs.) The short story as a form of literature. A study of its development and some of its types from Poe to the present time.

First semester: M. W. F., 11:00; Professor ARMSTRONG, 31 W.

39. American Literature. (3 Hrs.) A brief outline of its historical development and a study of selected works of representative authors.

First semester: M. W. F., 9:00; Professor ARMSTRONG, 31 W.

40. The Novel. (3 Hrs.) The study in this course will include the historical development of the novel; its significance; relation to modern life; types; tendencies; reading of novels, reports; lectures. (Omitted in 1913-14).

First semester: M. W. F., 1:00; Professor COX, 32 W.

41. Emerson. (3 Hrs.) A study of Emerson's prose and poetry. (Omitted in 1913-14).

Second semester: M. T. Th., 10:00; Professor BARBE, L.

42. English Literature. (3 Hrs.) Study of an author. The entire production or the most important work of some selected author will be studied to gain a complete view. The author to be studied in 1913-14 is Robert Browning.

Second semester: M. W. F., 9:00; Professor ARMSTRONG, 31 W.

43. Types of American Fiction. (2 Hrs.) A study of a few examples of the main types of American fiction.

Second semester: T. Th., 11:00; Professor ARMSTRONG, 31 W.

44. Current Literature. Seminar. The study will deal with the current novel and drama as an expression of modern life; reading, interpretation, and criticism; reports on selected topics; lectures.

Second semester: T. Th., 11:00; Professor COX, 32 W.

45. Literature in the Grades and the High School. (3 Hrs.) Intended especially for superintendents, principals, and teachers, but elective for students in all departments of the University. The course deals with the principles of literary criticism; application of tests; story-telling; general and special methods of presentation; the tributaries of the literary stream; courses of study; bibliography. (Omitted in 1913-14).

Second semester: M. W. F., 11:00; Professor Cox, 32 W.

46. A Study of Poetry. (2 Hrs.) A discussion of metrical and rhythmical forms and of theories of English verse; the essential qualities and historical development of English poetry. The course will include a study of typical poems of the several periods to illustrate forms ,principles, and theories.

Second semester: T. Th., 9:00; Professor BARBE, L.

47. Wordsworth. (3 Hrs.) A study of the poetry of Wordsworth. (Omitted in 1913-14).

Second semester: M. T. Th., 10:00; Professor BARBE, L.

NOTE:—For courses in Public Speaking see page 104.

ENTOMOLOGY

Professor PEAIRS

1. General Entomology. (4 Hrs.) A regular elective course for students in the College of Arts and Sciences. For detailed description of this course see announcements of the College of Agriculture, page 171. Prerequisite: Zoology 1.

Second semester; M. W. F., 8:00; laboratory, Th., 2:00; A.

3. Systematic Entomology. (3 Hrs.) A continuation of the work of classification begun in Course 1. Prerequisites: Entomology 1 and Zoology 1.

First semester; hours to be arranged.

4. Systematic Entomology. (3 Hrs.) Continuation of course 3.

Second semester; hours to be arranged.

5. Advanced Entomology. (3 Hrs.) For students whose major is entomology. Entomological investigation of systematic, morphologic, or biologic problems. Prerequisites: Entomology 1, 3, and 4 and Zoology 1.

First semester; hours to be arranged.

6. Advanced Entomology. (3 Hrs.) Continuation of course 5.

Second semester; hours to be arranged.

7. Insects and Disease. (1 Hr.) A lecture course dealing with the more common insects known to be directly responsible for the spread of certain diseases in man. Assigned reference work. Prerequisite: Entomology 1.

Second semester; hours to be arranged.

FARM MANAGEMENT

1. Farm Management. (3 Hrs.) This course is primarily designed for students in Agriculture, but credit will also be given for it in the College of Arts and Sciences. (See page 53.) For a detailed description of the course see announcements of the College of Agriculture, page 172. Prerequisite: Agronomy 1 and 2.

Second semester; M. W. F., 8:00.

2. Rural Economics. (3 Hrs.) A regular elective course for students in the College of Arts and Sciences. The study of economics as related to all phases of rural life. See announcements of College of Agriculture, page 172.

Second semester; T. Th. S., 8:00.

FINE ARTS

Associate Professor LEONARD

Credit will be given in the College of Arts and Sciences for not more than fifteen hours in fine arts. In case credit is asked for the maximum number of hours these must include the courses in the history of art.

1. Elementary Drawing. (5 Hrs.) The historic forms of art and their development. Lectures, with collateral reading and practice in drawing.

First semester; 9:00, L.

2. Elementary Drawing. (5 Hrs.) A continuation of course 1.

Second semester; 9:00, L.

16. Elementary Drawing. (2 Hrs.) For students in the College of Agriculture only. The study of form, proportion, light and shade, and composition with a view to the development of individual opinion, judgment, and the power of expressing ideas in shapes and forms. An acquaintance with some works of art will be encouraged.

First semester; T. Th., 8 to 11:00, L.

4. Advanced Drawing. (5 Hrs.) Historic periods of architecture, sculpture, and painting. Lectures, with collateral reading and practice in drawing.

First semester; M. T. Th. F., 10:00, and one hour to be arranged, L.

5. Advanced Drawing. (5 Hrs.) A continuation of course 4.

Second semester; M. T. Th. F., 10:00, and one hour to be arranged, L.

7. The History of Greek Art. (3 Hrs.) With a consideration of the arts of Egypt, Assyria, and Rome, in their relation to Greek art.

First semester; M. W. F., 8:00; L.

8. The History of Mediaeval and Modern Art. (3 Hrs.) With special consideration of the Renaissance period. Courses 7 and 8 are not open for freshmen.

Second semester; M. W. F., 8:00; L.

17. Public School Drawing. (5 Hrs.) For teachers who desire to become familiar with the methods and mediums employed in public school work.

Second semester; 11:00; L.

FRENCH

For announcement of courses in this subject see Romance Languages, page 107.

GEOLOGY AND MINERALOGY

6. General Mineralogy. (5 Hrs.) Designed for freshmen and sophomores. Required of students in mining engineering. This course treats of the principles of crystallography, physical and chemical properties, formation, uses and determination of the more important minerals. Textbook, Moses and Parsons' Mineralogy. Prerequisites: Trigonometry and some knowledge of chemistry and physics.

First semester; 8:00; 31 S.

4. **Economic Geology.** (3 Hrs.) Designed for juniors and seniors. Required of students in civil and mining engineering. This course treats of the occurrence and distribution of the non-metallic minerals, with attention to the geology of coal, oil and gas. Textbook, Ries' Economic Geology. Prerequisite: Geology 2 and 6.

Second semester; M. W. F., 11:00; 31 S.

2. General Geology. (3 Hrs.) Designed for sophomores and juniors. Required of students in civil and mining engineering. This course treats of surface features, stratigraphy, and structural geology. Numerous excursions will be taken. Textbook, Chamberlain and Salisbury. Prerequisite: Some knowledge of chemistry.

First semester; M. W. F., 11:00; 30 S.

8. Geology of West Virginia. (2 Hrs.) Designed for seniors and especially for teachers in high schools. This course is a physical history of the state and an account of its economic resources. Prerequisite: Geology 2.

First semester; T. Th., 11:00, 30 S.

7. Determinative Mineralogy. (5 Hrs.) Continuation of course 6. Required of students in mining engineering. This course consists of work in determining minerals and precise measurements with reflecting goniometer. Textbook, Moses and Parsons. Prerequisites: Some knowledge of chemistry and physics.

Second semester; 8:00; 31 S.

5. Economic Geology. (3 Hrs.) Designed for juniors and seniors. A continuation of course 4. This course gives an account of the occurrence of ore deposits and the distribution of metallic minerals. Textbook, Ries. Prerequisites: Geology 2, or Geology 6.

Second semester; M. T. F., 10:00; 31 S.

3. General Palaeontology. (3 Hrs.) Designed for juniors and seniors. A continuation of Geology 2. This course gives an account of the progress and development of plants and animals through the different ages of the earth. Textbook, Chamberlain and Salisbury. Prerequisites: Geology 2, and some knowledge of botany and zoology.

First semester; M. W. F., 10:00; 30 S.

9. History of Geology. (2 Hrs.) Designed for seniors and teachers. Largely a lecture course, showing the development of the sciences of geography and geology and discussing the discoveries and lives of its founders.

Second semester; T. Th., 11:00; 30 S.

10. Petrology and Building Stones. (2 Hrs.) A study of rocks with about 400 specimens of the various types from many countries. Adapted to the needs of engineers and architects.

Second semester; T. Th., 11:00; 30 S.

NOTE:—Courses 9 and 10 will not both be given in any one year.

GERMANIC LANGUAGES AND LITERATURES

Professor TRUSCOTT and Mr. KOELZ

1. Elementary German. (5 Hrs.) Pronunciation, grammar, reading of simple prose. Vos's or Thomas's Grammar; Super's Reader; Grimm's Maerchen.

First semester; section 1, 9:00; section 2, 11:00; Mr. KOELZ, 19 W.

Second semester; 11:00 Professor TRUSCOTT, 18 W.

2. Elementary German. (5 Hrs.) Continuation of course 1. Reading, dictation, elementary composition. Willkommen in Deutschland; Immensee; Hoeher als die Kirche; Kreuz und Quer durch Deutsche Lande.

First semester; 11:00; Professor TRUSCOTT, 18 W.

Second semester; section 1, 9:00; section 2, 11:00; Mr. KOELZ, 19 W.

3. German Prose and Composition. (5 Hrs.) Rapid reading of prose by modern authors; translation of English into German; grammar; dictation. Pope's Composition; Thomas's German Grammar.

First semester; 8:00; Mr. KOELZ, 19 W.

4. German Poetry and Composition. (5 Hrs.) One long poem and one drama; well known short poems. The work in composition will be a continuation of that in course 3. Hermann und Dorothea; Die Jungfrau von Orleans; Klenze's Deutsche Gedichte.

Second semester; 8:00; Mr. KOELZ and Professor TRUSCOTT, 19 W.

5. Germany and the Germans. (3 Hrs.) A course of general information about the country and the people. Deutsche Lande; Aus vergangener Zeit; Arndt's Deutsche Wirtschaft; Lodemann's Germany and the Germans.

First semester; M. W. F., 8:00; Professor TRUSCOTT, 18 W.

6. Advanced Composition. (2 Hrs.) Translation; dictation; grammar. Bronson's Colloquial German; Jagemann's Prose Composition.

First semester; T. Th., 8:00; Professor TRUSCOTT, 18 W.

7. Heine and Lyric Poetry. (3 Hrs.) Reading from Heine's prose and poetry. Lyric poems by other authors. Kluge's Auswahl Deutscher Gedichte.

Second semester; M. W. F., 8:00; Mr. KOELZ, 19 W.

8. Advanced Composition. (2 Hrs.) A continuation of course 6.

Second semester; T. Th., 8:00; Professor TRUSCOTT, 18 W.

9. Schiller. (3 Hrs.) Study of his life. Gedichte; Don Carlos; Wallenstein; Wilhelm Tell.

First semester; M. W. F., 9:00; Professor TRUSCOTT, 18 W.

10. Goethe. (3 Hrs.) Study of his life. Gedichte; Werther's Leiden; Torquato Tasso; Faust, Part 1.

Second semester; M. F., 9:00; third hour to be arranged; Professor TRUSCOTT, 18 W.

11. History of German Literature. (3 Hrs) The history of the literature to 1748; reading and discussion of works representative of the most important authors and periods. As a hand-book Kluge's Geschichte der deutschen Nationalliteratur will be used. (Omitted in 1913-14.)

First semester; M. F., 10:00; third hour to be arranged; Professor TRUSCOTT, 18 W.

12. History of German Literature. (3 Hrs.) A continuation of course 11. The history of the literature from 1748 to 1900. (Omitted 1913-14.)

Second semester; M. W. F., 10:00; Professor TRUSCOTT, 18 W.

13. Lessing. (3 Hrs.) Study of his life. Minna von Barnhelm; Emilia Galotti; Nathan der Weise. Laocoon. (Omitted 1913-14.)

First semester; hours to be arranged; Professor TRUSCOTT, 18 W.

15. Modern German Drama. (2 Hrs.) A reading course. The classical works of Goethe and Schiller not considered. Prerequisites: Courses 1, 2, 3, 4, and 5. (Omitted 1913-14.)

First semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

16. Modern German Drama. (2 Hrs.) A continuation of course 15. (Omitted 1913-14.)

Second semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

17. German Novel and Short Story. (2 Hrs.) A reading course in nineteenth century prose. Prerequisites: Courses 1, 2, 3, 4, and 5.

First semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

18. German Novel and Short Story. (2 Hrs.) A continuation of course 17.

Second semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

19. Scientific German. (3 Hrs.) Intended for students in the scientific departments. Prerequisites: Courses 1, 2, and 3. (Omitted 1913-14.)

Second semester; M. W. F., 11:00; Mr. KOELZ, 19 W.

20. Newspaper German. (3 Hrs.) Newspaper and magazine articles on various subjects. Prehn's Journalistic German; New Yorker Staatszeitung. Prerequisites: Courses 1, 2, and 3.

Second semester; M. W. F., 11:00; Mr. KOELZ, 19 W.

21. Special Topics in German Grammar. (1 Hr.) For students who intend to teach German. Discussion of text-books. Registration conditional with the instructor.

Second semester; M. 10:00; Professor TRUSCOTT, 18 W.

GREEK

Professor BISHOP

1. Elementary Greek. (5 Hrs.) White's Beginning Book.

First semester; 11:00; 23 W.

2. Elementary Greek. (5 Hrs.) White's Beginning Book, continued; Xenophon's Anabasis.

Second semester; 11:00; 23 W.

3. Xenophon's Anabasis. (4 Hrs.) Goodwin's Grammar; original exercises based on textbook.

First semester; M. T. Th. F., 10:00; 23 W.

4. Lysias' Orations—Homer's Iliad. (4 Hrs.) Goodwin's Grammar; exercises based on Lysias; original exercises.

Second semester, M. T. Th. F., 10:00; 23 W.

5. Attic Orators. (4 Hrs.) Jebb's Selections from the Attic Orators; Goodwin's Grammar; exercises based on selections read.

First semester, hours to be arranged; 23 W.

6. Homer's Odyssey. (4 Hrs.) Goodwin's and Monroe's Grammars; original exercises.

Second semester, hours to be arranged; 23 W.

NOTE:—Courses 5 and 6 constitute an elaboration of oratory and epic, the two characteristic parts of Course 4; given, when occasion requires.

7. Plato's Apology, Krito, and Euthyphro. (3 Hrs.) Goodwin's Grammar; original exercises; Fowler's History of the Greek Literature.

First semester; M. W. F., 9:00; 23 W.

8. Demosthenes "On the Crown." (3 Hrs.) Goodwin's Grammar; original exercises; Fowler's History of the Greek Literature.

Second semester; M. W. F., 9:00; 23 W.

9. Xenophon's Memorabilia. (3 Hrs.) Goodwin's Grammar; original exercises; Fowler's History of the Greek Literature.

First semester; M. W. F., 9:00; 23 W.

10. Herodotus. (3 Hrs.) Goodwin's Grammar; original exercises.

Second semester; M. W. F., 9:00; 23 W.

NOTE:—Courses 9 and 10 alternate with courses 7 and 8 as circumstances may direct.

11. Thucydides. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax; Fowler's History of Greek Literature for reference.

First semester; hours to be arranged; 23 W.

12. Aeschylus Prometheus Bound. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax.

Second semester; hours to be arranged; 23 W.

13. Sophocles' Oedipus Rex. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax.

First semester; hours to be arranged; 23 W.

14. Euripides' Ion. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax.

Second semester; hours to be arranged; 23 W.

15. Greek Literature in Translation. (2 Hrs.) Masterpieces of Greek Literature; mythology; Capps' Homer to Theocritus.

First semester; T. Th., 9:00; 23 W.

16. Greek Life and Religion. (2 Hrs.) Greek religion; home life of the Greeks; Greek archæology.

Second semester; T. Th., 9:00; 23 W.

17. The New Testament in Greek. Selected portions of the New Testament read, as circumstances may direct.

Second semester; hours to be arranged; 23 W.

HISTORY AND POLITICAL SCIENCE

The work offered in this department includes: (1) Continental European History, (2) English History, (3) American History, and (4) Political Science.

Instruction is given by lectures, text-book work, assigned collateral readings; preparation of papers, syllabi, and maps; special reports, recitations, and informal conferences.

Students are encouraged to observe and to read contemporary history and politics.

An association of those who are especially interested in the work of the department meets fortnightly for part of the year to hear the discussion of special topics and current problems.

An afternoon hour is designated for conferences and for direction of library work.

Continental European History

Professor CHITWOOD

Students who select continental European history as their principal study are advised to take at least one year in French or German, in the early part of the University course.

Among the books of reference, which every student will often need to consult, are Ploetz's Epitome of Universal History and some good historical atlas, such as Putzger's Historischer Schul-Atlas, or Dow's Atlas of European History.

9. History of Oriental Civilization. (3 Hrs.) This is a general culture course, and a fitting introduction to the study of history. It begins with a survey of primitive society and traces the rise and development of human institutions. It directs especial attention to the early institutional history of India, Chaldea, Assyria, and Egypt and gives a survey of their contributions to civilization.

First semester; M. W. F., 11:00; Professor CHITWOOD, 29 W.

10. History of Greece. (3 Hrs.) In this course the central idea is the development of civilized life as expressed in art, literature, and philosophy, in personal character and social customs, as well as in political ideas and institutions. An attempt will be made to gain an appreciation of what the Greeks were and what they gave to civilization.

First semester; M. W. F., 8:00; Professor CHITWOOD, 29 W.

11. History of Rome. (3 Hrs.) The aim of this course is to trace the development of Roman institutions, character, and civilization, to explain the genius of the Roman people for organization and

government, and to call attention to the contributions of Rome to modern civilization.

Second semester; M. W. F., 8:00; Professor Chitwood, 29 W.

12. Mediaeval History. (4 Hrs.) Primarily for freshmen. This course begins with the period of institutional chaos following the breakup of the Roman empire, and ends with the rise of modern states. Special attention is devoted to the three prime factors in the history of the middle ages,—the surviving civilization of Rome, the Christian church, and the German people. Political history, except in the case of France, is subordinated to the study of social and economic institutions.

First semester; M. T. Th. F., 10:00; Professor Chitwood, 29 W.

14. Modern European History. (4 Hrs.) Primarily for Freshmen. This course covers the Reformation and the religious wars, the revolt of the Netherlands and the rise of the Dutch republic, the rise of Prussia, the period of French ascendency, the revolutionary and Napoleonic eras, the period of reaction, the unification of Germany and Italy, and the progress of democracy in the nineteenth century.

Second semester; M. T. Th. F., 10:00; Professor Chitwood, 29 W.

13. The Renaissance and the Reformation; 1300-1648. (3 Hrs.) A transition from mediæval to modern history. The development of the forces of modern civilization; survey of the economic, political, and intellectual conditions at the close of the middle ages; rise and decline of the papal hiearchy; the renaissance in Italy and Germany; the protestant revolution in the principal European states; the counter-reformation; and the religious wars to the Treaty of Westphalia.

First semester; M. W. F., 9:00; Professor Chitwood, 29 W.

15. Continental Europe in the Nineteenth Century. (3 Hrs.) This course is devoted to an intensive study of political and social conditions in the more important states of Europe during the last hundred years. Somewhat extended reading is required of students taking this course, and the results of this reading is presented in the form of papers and reports.

Second semester; M. W. F., 11:00; Professor Chitwood, 29 W.

16. Seminar in European History. (2 Hrs.) For advanced history students only.

First semester; T. Th., 11:00; Professor Chitwood, 29 W.

44. The French Revolution and Napoleonic Era. (3 Hrs.) A survey of the facts of European History from 1648 to 1789, with emphasis on the causes of the French Revolution, and an intensive

study of the great political, social and military movements from 1789 to 1815.

Second semester; M. W. F., 9:00; Professor CHITWOOD, 29 W.

45. Current European History. (2 Hrs.) A study of recent and current events in Europe and the East. Prerequisites: Course 14 or its equivalent.

Second semester; T. Th., 11:00; Professor CHITWOOD, 29 W.

English History

Students will find it convenient to own Low and Pulling's Dictionary of English History and Gardiner's Atlas.

Courses 17 and 18 or 19 and 20 furnish a good foundation for the study of American history and law.

17. History of England to the Tudors. (3 Hrs.) A course in the general and institutional history of England. Special attention is given to political, economic, and social life and development; the more important subjects in constitutional history are considered, showing how England learned to govern herself .

First semester; M. T. Th., 10:00; Professor CALLIHAN, 30 W.

18. History of England from the Tudors to the Present Time. (3 Hrs.) A continuation of course 17. The unbuilding of the British empire and adjustment to new conditions. The constitutional and religious struggles of the sixteenth and seventeenth centuries; economic and social changes; international relations; development of a sea power; struggle for colonial and commercial supremacy; and the formation of modern conditions and institutions.

Second semester; M. T. Th., 10:00; Professor CALLAHAN, 30 W.

19. English Social and Industrial History. (3 Hrs.) A survey of the facts of social and industrial evolution and their relation to political history and the interpretation of present conditions; a study of the enlargement of English life and the growth of English institutions. (Omitted in 1911-12.)

First semester; M. W. F., 11:00; Professor CALLAHAN, 30 W.

20. English Historical and Practical Politics: English Constitutional Law and History. (2 Hrs.) A seminar course arranged especially for advanced students in history who desire a suitable preparation for courses in American government and law. Prerequisite: A general outline knowledge of English history and course 17, 18 or 19.

First semester; T. Th., 11:00; Professor CALLAHAN, 30 W.

American History

All students of American history should have Channing and Hart's Guide, and McCoun's Historical Geography of the United States.

21. American Colonial History (1492-1776). (2 Hrs.) European back-ground; economic and political conditions. Evolution of discovery and settlement; growth of the English settlements into colonies; origin and development of American institutions; social and economic life; French colonial policy and the Anglo-French colonial conflict; adaption of European civilization to American conditions; relation of the colonies to England; and the separation.

First semester; T. Th., 9:00; Professor CALLAHAN, 30 W .

22. The Formation of the Union: American Political History 1776-1829.) (3 Hrs.) The revolution, the critical period, the formation of the constitution, the organization of the government, the struggle for neutrality and the development of nationality, the expansion of the Union, and the triumph of democracy. Special attention is given to political and constitutional development and to international relations, but industrial and social growth is also treated.

First semester; M. W. F., 9:00; Professor CALLAHAN, 30 W.

23. Division and Reunion: American Political History Since 1829. (3 Hrs.) Economic questions and the slavery contest; the growth of sectional differences, culminating in the secession movement; the Civil War and its problems, the overthrow of the slave power, and readjustment; a brief survey of the political and social questions since the Civil War, and of the development of the resources of the country.

Second semester; M. W. F., 9:00; Professor CALLAHAN, 30 W.

In courses 21, 22, and 23, while special emphasis is laid on political and constitutional history, much attention is given to social and economic conditions.

26. History of American Diplomacy and Foreign Policy (1776-1909.) (2 Hrs.) A general survey of the negotiations, treaties, arbitrations, congresses, etc., to which the United States has been a party; the fundamental principles of American policy; a study of the most important phases of American international relations; America's influence on international law and diplomacy; the state department and its most distinguished secretaries.

Second semester; T. Th., 9:00; Professor CALLAHAN, 30 W.

29. American Social and Economic History. (3 Hrs.) This course is designed to furnish a basis for the proper study of economics.

Beginning with the exploration and settlement that led to colonization, the student traces the growth and expansion of manufactures, agriculture, commerce, transportation, population, and labor from the simple agricultural communities of the colonies to the complex industrial and commercial organization of today.

Second seemster; M. W. F., 11:00; Professor CALLAHAN, 30. W.

32. History of West Virginia. (2 Hrs.) A seminar course designed for juniors or seniors in history. Coöperative investigations in social, economic, political and constitutional documentary material; considerable attention is given to railroad development and the growth of towns; an effort is made to collect historical material from different parts of the state.

First semester; F., 10:00; Professor CALLAHAN, 30 W and L.

34 Seminar in American History. (2 Hrs.) A research course supplemented by lectures. Exclusively for students taking history as their major. Students are required to take notes, to investigate assigned topics, and to become acquainted with the original materials that are accessible. Proper attention is given to scientific methods of historical research, construction, and interpretation. Theses in American history are prepared in connection with this work. (Omitted 1912-13.)

Second semester; F., 9:00; Professor CALLAHAN, L.

The attention of students taking American History is invited to the announcements of the Bryan prize and the Tax Commission Prize on page 37.

Political Science

In all these courses, students should have a clear knowledge of the outlines of general history and especially of modern political history.

35. American Practical Politics: Government at Work. (2 Hrs.) A practical study of the actual workings of the government and politics of the United States, both state and national; the growth, spirit, machinery, operations, and functions of the government; the relations, rights and duties of citizens; the policies of state on public questions and problems. Special attention is given to the realities of governments and institutions, and to the personal interest and personal action which underlie constitutions and statutes.

Open to students who have a familiar knowledge of the period covered by courses 22 and 23.

Second semester; T. Th., 11:00; Professor CALLAHAN, 30 W.

36. European Historical and Practical Politics. (2 Hrs.) A historical study of the development of the political institutions, constitutional governments, and parties of the leading countries of modern continental Europe. Special attention is given to recent European politics. Open to advanced students who have had thorough courses in European history, especially course 14.

First semester; T. Th., 11:00; Professor Chitwood, 29 W.

40. Municipal Government. (2 Hrs.) (Omitted 1913-14.)

42. Anglo-American Historical Jurisprudence. (2 Hrs.) A study of the sources and growth of law and the development of legal institutions in connection with social and political history. Adapted especially to advanced students of history who are preparing for the study of law. (Omitted in 1913-14.)

First semester; T. Th., 11:00; Professor Callahan, 30 W.

43. International Law and Practice of Diplomacy. (2 Hrs.) Open to students with a knowledge of modern history, especially courses 22 and 23. (Omitted 1913-14.)

Second semester; T. Th., 9:00; Professor Callahan, 30 W.

HOME ECONOMICS

Assistant Professor Colwell and Miss Oliver

1. Selection and Preparation of Food. (5 Hrs.) A study of the chemical composition, relative physiological and economic value of the animal foods and their products; processes in the production of raw food material. Practical application is given of the methods by which heat is applied to the food material and a study of the effect of these methods upon the dietetic value of the food is made.

It is recommended that Chemistry 1 and 2 precede or parallel this course.

First semester; T. Th., 9:00; laboratory, M. W. F., 1:15; Professor Colwell, 2 W.

2. Selection and Preparation of Food. (5 Hrs.) Continuation of course 1. A study of the chemical composition and relative physiological and economic value of the vegetable foods and their products; processes in the production of raw food material; principles of diet. Practical application of the methods by which heat is applied to the food material is given and a study is made of simple food combinations and their effect upon the dietetic value of the food. Prerequisite: Same as in course 1.

Second semester; T. Th., 9:00; laboratory, M. W. F., 1:15; Professor Colwell, 2 W.

3. Hygiene. (2 Hrs.) Open to all women students. The purpose of this course is to give a knowledge of the laws fundamental to normal health and its maintenance and the relation of the individual to the home.

First semester; T. Th., 11:00; Professor COLWELL, 2 W.

4 Dietetics. (4 Hrs.) A study of digestion, absorption, assimilation of food constituents; methods of determining the food requirements; amounts of food required for the nutrition of the normal adult at rest and at work; diet for infancy, youth, old age; special diets; cost of family dietaries. Prerequisite: Courses 1 and 2.

First semester; M. W., 8:00; laboratory, T. Th., 8:00; Professor COLWELL, 2 W.

5. The House. (2 Hrs.) Evolution of the house; location and construction of modern houses are studied from the sanitary, economic and artistic point of view; study of house plans; designing of floor plans and elevation of a house for an estimated cost. Parallel course, Mechanical drawing 21.

First semester; T. Th., 10:00; Miss OLIVER, 2 W.

6. The House. (2 Hrs.) Continuation of Course 5. Interior decoration and furnishing; organization of the household; division of income; care of the home; problems of domestic service. Prerequisite: Home economics 5 and mechanical drawing 21. Parallel course: Steam, gas, and experimental engineering 127.

Second semester; T. Th., 10:00; Professor COLWELL and Miss OLIVER, 2 W.

7. Domestic Science in Public Schools. (4 Hrs.) This course includes the following subjects: Planning of the equipment; correlation with other subjects in the school; practice in planning courses. Prerequisite: Courses 1, 2, 4, 11, 12.

Second semester; M. T. Th. F., 11:00; Professor COLWELL, 2 W.

8. Special Problems. (3 Hrs.) Open to juniors and seniors. Thesis course. This course is designed to give advanced work in foods and related home economics problems. Lectures, conferences, laboratory work. Prerequisite: Home Economics 1, 2, and 4; Chemistry 1 and 2; Botany 1 and 2, or Zoology 1.

Second semester; M. W., 9:00; laboratory, T. Th., 1:15; Professor COLWELL, 2 W.

11. Household Arts Design. (3 Hrs.) The course includes the fundamental principles of design illustrated by nature study; a study of the works of modern artists and of woven and printed fabrics;

evolution of design; theory of color and its application to problems of the home; creative exercises in the arts of design as directly applied in the printing of textiles, stenciling, basketry.

First semester; M. W. F., 1:15; Miss OLIVER, W.

12. Textiles. (3 Hrs.) Evolution of textiles; a study of the manufacturing conditions which effect the economic, hygienic and esthetic value of the material. Laboratory work includes simple household tests, microscopical and chemical; grading of market fabrics; laundry problems; the dyeing of textile fabrics; weaving; hand and machine work.

Second semester; M. W. F., 1:15; Miss OLIVER, W.

13. Manufacture and Selection of Clothing. (3 Hrs.) History of costume; costume designing; special problems in designs and color schemes; economic problems of the home made garment as compared to factory product; a study of the clothing industry and the hygienic aspect of clothing.

First semester; hours to be arranged; Miss OLIVER, W.

HORTICULTURE

1. Plant Propagation. (3 Hrs.) This course is primarily designed for students of Agriculture, but credit will also be given for it in the College of Arts and Sciences. (See page 53.) For a detailed description of the course see announcements of the College of Agriculture on page 173.

Second semester; T. Th., 10:00; laboratory, T., 2:00; 27 M.

ITALIAN

For courses in this subject see under Romance Languages, page 110.

LATIN

Professor TROTTER, Professor HARE and Associate Professor DARBY

Courses 1, 2, 3 and 4 may be offered for entrance or taken as college work. In addition to these 5 and 6 are required of candidates for the A.B. degree, unless Greek is substituted for part or all. Students offering two units for entrance will begin with 1; those offering three units will begin with 3, and those offering four units with 5. Additional courses are required of those making Latin their major, depending on the amount offered for entrance. Students making Latin their major will also take History 10 and 11. (See page 84.)

1. Cicero. (3 Hrs. or if offered to remove entrance conditions, one-half unit.) Primarily for freshmen offering two units for entrance. Required of all candidates for the A.B. degree. The first three orations against Catiline are read. The work includes a thorough review of forms and syntax; careful translation, literal and free; grammatical constructions and idioms, and political history of the period at which the orations were delivered. Prerequisite: two units of high school Latin.

First semester; 8:00; Professor HARE, 12 W.

2. Cicero. (Credit same as in course 1.) Continuation of course 1. The orations read are the fourth oration against Catiline, the oration for Archias, and the Manilian law. Prerequisite: Latin 1.

Second semester; 8:00; Professor HARE, 12 W.

3. Virgil. (Credit same as in course 1.) Primarily for freshmen offering three units for entrance. Required of all candidates for the A.B. degree. The first three books of the Aeneid are read. The work includes accurate translation, mythological and historical allusions, religious and social customs, grammatical constructions, and the metrical reading of the text. Composition once a week. Prerequisite: Latin 2.

First semester, M. T. Th. F., 10:00; Professor HARE, 12 W.

4 Virgil. (Credit same as in course 1.) Continuation of course 3. Books four, five and six are read, and short papers on assigned topics suggested by the text are required. Composition once a week. Prerequisite: Latin 3.

Second semester; M. T. Th. F., 10:00; Professor HARE, 12 W.

5. Cicero—De Senectute and De Amicitia; Livy XXI. (5 Hrs.) Reading and translation, review of grammar, study of assigned topics in Roman history and philosophy. Open to students who have had the preceding or four units of high school Latin.

First semester: First section, 9:00; Professor TROTTER, 13 W.
Second section, 8:00; Professor DARBY, 14 W.

6. Livy XXII, and Horace, Odes and Epodes. (5 Hrs.) Continuation of 5. Particular attention to the meters of Horace, his life and beliefs.

Second semester: First section, 9:00; Professor TROTTER, 13 W.
Second section, 8:00; Professor DARBY, 14 W.

7. Cicero—De Officiis. (3 Hrs.) Rapid reading and study of Cicero's ethical teachings.

First semester; M. W. F., 11:00; Professor DARBY, 14 W.

8. Comedy. (3 Hrs.) Five or six plays of Plautus and Terence. Study of characters, development of plot, etc .
Second semester; M. W. F., 11:00; Professor DARBY, 14 W.

9. Teachers' Course in Latin. (2 Hrs.) Study of indirect discourse in Cæsar and Livy, and composition; discussion of questions pertaining to the teaching of Latin, etc. No credit will be allowed in this course until the following course is taken.
First semester; T. Th., 8:00; Professor TROTTER, 13 W.

10. Teachers' Course in Latin. (2 Hrs.) Continuation of 9.
Second semester; T. Th., 8:00; Professor TROTTER, 13 W.

11. Horace—Satires and Epistles. (4 Hrs.) Selected satires and epistles are read, with attention to Horace's personal life.
First semester; M. T. Th. F., 10:00; Professor TROTTER, 13 W.

12. Roman Oratory. (4 Hrs.) Cicero's De Oratore and Tacitus's Dialogus de Oratoribus are read; preparation of the orator, his work and influence are discussed.
Second semester; M. T. Th. F., 10:00; Professor TROTTER, 13 W.

13. Juvenal. (3 Hrs.) Satires, with study of contemporaneous history.
First semester; time to be arranged; Professor TROTTER, 13 W.

14. Seneca. (3 Hrs.) Moral Essays with a study of his times. Coördinate with Philosophy 7.
Second semester; time to be arranged; Professor TROTTER, 13 W.

15. Roman Rhetoric. (2 Hrs.) Quintilian's Institutions.
First semester; time to be arranged; Professor DARBY, 14 W.

16. Lucretius. (2 Hrs.) De Rerum Natura, with a study of his doctrines.
Second semseter; time to be arranged; Professor DARBY, 14 W.

LAW

Credit will be given in the College of Arts and Sciences for fifteen hours in this subject given in the College of LAW. See page 190.

LIBRARY SCIENCE

Mr. ARNETT.

1. Library Methods. (2 Hrs.) An introductory course for the purpose of acquainting students with the University Library and the practice of library methods; instruction in the use of catalogues,

indexes, and general reference books, and in the selection and purchases of books.

First semester; T. Th., 8:00; L.

2. Library Methods. (2 Hrs.) Theory and practice of library methods, including elementary cataloguing, classification, binding and repair of books, loan desk, etc.

Second semester; T. Th., 8:00; L.

MATHEMATICS

Professor EIESLAND and Professor HODGSON.

Courses 9, 10, 11, 12, 15, 16 are intended for those who choose mathematics as a major subject. Courses 10, 11, and 12 are recommended for those whose major is physics.

1. Algebra. 9 four-hour course for which no college credit is given, intended primarily for freshmen who enter with a condition in mathematics, or who cannot make a satisfactory record in course 3. If offered to remove entrance condition one-half unit credit is given. Simple equations, involution, theory of exponents, radicals, quadratic equations, graphs. Hedrick's algebra for secondary schools.

First semester; T. Th. F., 10:00; W. 3:00; Professor EIESLAND, 11 M.

2. Solid Geometry. (4 Hrs. If offered to remove entrance condition, one-half unit.) This course includes also a short review of special topics in Algebra, such as radicals, equations of the first and second degrees, etc.

First semester; M. T. Th. F., 8:00; Professor HODGSON, 10 M.

3. Advanced Algebra. (3 Hrs.) Radicals, imaginaries, graphic algebra, logarithms, elementary theory of equations with Horner's method, etc.

First semester; M. W. F., 9:00; section one, Professor EIESLAND, 11 M.; Section two, Professor HODGSON, 10 M.

Second semester; M. W. F., 8:00; Professor HODGSON, 10 M.

4. Plane Trigonometry. (2 Hrs.) Prerequisite, algebra through quadratics.

First semester; T. Th., 9:00; section one, Professor EIESLAND, 11 M. Section two, Professor HODGSON, 10 M.

5. Plane Analytic Geometry. (3 Hrs.) Prerequisites, courses 3 and 4.

Second semester; M. W. F., 9:00; section one, Professor EIESLAND, 11 M. Section two, Professor HODGSON, 10 M.

6. Plane and Spherical Trigonometry. (2 Hrs.) This course is a continuation of course 4 and includes special topics in plane trigonometry, such as Des Moivre's Theorem, trigonometric series, solution of trigonometric equations and also application of spherical trigonometry to astronomical problems.

Second semester; T. Th., 9:00; section one, Professor EIESLAND, 11 M. Section two, Professor HODGSON, 10 M.

7. Differential and Integral Calculus. (3 Hrs.) Prerequisites, courses 3, 4, 5, and 6. Two conference hours each week.

First semester; 8:00; Professor EIESLAND, 11 M.

8. Differential and Integral Calculus. (3 Hrs.) This course is a continuation of course 7. Two conference hours each week.

Second semester; 8:00; Professor EIESLAND, 11 M.

NOTE:—In courses 7 and 8, the part of each denoted as "conference," two hours weekly, is not intended to increase the amount of prepared class work. It really amounts to two hours weekly of study in preparation for the regular class recitations with the help and guidance of the teacher. Attendance at these conferences is required just as in the case of regular recitations.

9. Differential Equations. (3 Hrs.) Prerequisites courses 7 and 8.

Second semester; T. Th. F., 10:00; Professor EIESLAND, 11 M.

10. Theory of Determinants and Analytic Geometry of Space. (2 Hrs.) Prerequisite, courses 5, 7, and 8.

Second semester; M. and W., 3:00; Professor EIESLAND, 11 M.

11. Advanced Topics in Calculus. (2 Hrs.) This course is based on Goursat.

First semester; T. Th., 3:00; Professor EIESLAND, 11 M.

12. Projective Geometry. (3 Hrs.)

Second semester; M. T. F., 10:00; Professor HODGSON, 10 M.

13. Analytic Geometry and Calculus. (5 Hrs.)

First semester; 11:00; Professor HODGSON, 10 M.

14. Differential and Integral Calculus. (5 Hrs.)

Second semester; 11:00; Professor HODGSON, 10 M.

15. Introduction to Lie's Theories of Continuous Groups with Application to Differential Equations. Prerequisites, courses 9 and 12.

First semester; credit and hours to be arranged; Professor EIESLAND, 11 M.

16. Higher Plane Curves, with Special Reference to Curves of the Third and Fourth Order.

First semester; credit and hours to be arranged. Professor HODGSON, 10 M.

Astronomy

1. Descriptive Astronomy. (3 Hrs.) Opportunity is given to those who wish to do sextant work and work with a portable transit.

Second semester; hours to be arranged; Professor EIESLAND, 11 M.

MECHANICAL ENGINEERING

Credit not to exceed thirty hours will be given in the College of Arts and Sciences for certain courses in this subject given in the College of Engineering. See page 130.

MECHANICS AND APPLIED MATHEMATICS

Credit not to exceed thirty hours will be given in the College of Arts and Sciences for certain courses in this subject given in the College of Engineering. See page 130.

MEDICAL SCIENCES

Professor SIMPSON and Dr. MORRIS

NOTE:—For description of medical science laboratories see page 21.

Physiology

1. Physiology. (5 Hrs.) Intended for college students who do not care to go into the details of medical physiology. The course covers fully all the preparation needed for teachers' courses. A study of the function of the different organs of the body, illustrated by demonstrations of human organs and those of the lower animals, with a microscopic study of the most important tissues of the body.

First semester; 11:00; Professor SIMPSON, 9 W.

2. Physiology. (5 Hrs.) Lectures, demonstrations, recitations and assigned lessons, covering the muscles, nerves, central nervous system, special senses, blood and lymph.

First semester; 8:00; Professor SIMPSON, 9 W.

3. Physiology. (5 Hrs.) Primarily for medical students. Continuation of Physiology 2. Organs of circulation; physical factors;

nervous control of organs; vasomotor nerves; respiration; digestion; secretion and nutrition; heat production; reproduction.

Second semester; 8:00; Professor SIMPSON, 9 W.

4. Physiology. (3 Hrs.) Laboratory course to supplement Physiology 2 and 3. Each student makes complete records of each experiment, and these with his note book are examined at the end of the course. Experiments in muscle contraction and conduction of nerves. Blood pressure, heart control, pulse and digestion.

Second semester: laboratory, M. Th. F., 10:00-12:00; Professor SIMPSON, 9 W.

Anatomy

11. Osteology. (4 Hrs.) Informal talks and quizzes on the bones joints and ligaments of the human skeleton. A set of bones is furnished each student for study outside of the class room.

First semester; M. T. W. F., 9:00; Dr. MORRIS, 8 W.

12. Histology. (3 Hrs.) A microscopic study of the normal organs and tissues of the human body and of animals.

First semester; M. W. F., 2:00-4:30; Dr. MORRIS, 8 W.

13. Dissection. (5 Hrs.) Primarily for medical students. Careful dissection of the cadaver with reference to the nerves, blood vessels and muscles. The cadaver is divided into three parts, each student dissecting an arm, a leg including the abdominal viscera and the head including the thoracic viscera. A fee of five dollars is charged for each part.

Second semester; laboratory, 2:00-4:30; Dr. MORRIS, A. L.

14. Dissection. (5Hrs.) Continuation of Dissection 3.

Second semester; laboratory, 2:00-4:30; Dr. MORRIS, A. L.

21. Pathology. (2 Hrs.) Primarily for medical students. The course consists in the gross and microscopic study of diseased tissues, organs, and new growth in the human body. Prerequisite: Histology 2.

First semester; laboratory, Tu. T., 2:00-4:30; Dr. MORRIS, 8 W.

22. Pathology. (4 Hrs.) Continuation of Pathology 1.

Second semester; laboratory, M. Tu. W. T., 8:00-11:00; Dr. MORRIS, 8 W.

Pharmacology

41. Pharmacology. (3 Hrs.) Study of the histology of some of the plants used in medicine; of crude drugs and their preparations; of the physiological actions, toxicology, and therapeutics of drugs. These are illustrated as far as possible by animal experiments.

Second semester; M. W. F., 9:00; Professor SIMPSON, 9 W.

42. Pharmacology. (2 Hrs.) Continuation of Pharmacology 1. In this course the student is required to make fluid extracts, tinctures, infusions, pills, ointments, mixtures, and emulsions and to perform experiments showing the action of drugs upon lower animals, the action of anæsthetics and their proper administration.

Second semester; laboratory, T. Th., 9:00-12:00; Professor SIMPSON, 9 W.

43. Pharmacology. (3 Hrs.) Continuation of Pharmacology 1. The course covers the study of the standard drugs and their preparation.

First semester; M. W. F., 9:00; Professor SIMPSON, 9 W.

NOTE:—See also announcement of the School of Medicine, page 198.

MUSIC

Miss HAYES

Note:—Fifteen hours of the following courses may be offered for credit in the College of Arts and Sciences. These courses are designed not only for students of the School of Music but for those desiring general education.

1. Harmony. (5 Hrs.) First semester, 9:00.

2. Harmony. (5 Hrs.) Second semester, 9:00.

3. Counterpoint. (5 Hrs.) First semester, 11:00.

4. Analysis. (5 Hrs.) Second semester, 11:00.

5. History of Music. (4 Hrs.) First semester, 10:00.

6. History of Music. (4 Hrs.) Second semester, 10:00.

NOTE:—For outline of above courses see announcements of the School of Music on page 212.

PHILOSOPHY

The chair of philosophy having been vacant in 1912-13 the work of this department has been under the charge of Professor DEAHL and Emeritus Professor REYNOLDS, the former being acting head of the Department.

1. Psychology. (2 Hrs.) An introductory course in descriptive, physiological and experimental psychology. The aim will be to make the course serve as a part of a liberal education and as a preparation for more advanced work in psychology and philosophy. General botany or animal biology should accompany or precede this course.

First semester; Tu., Th., 9:00; 17 W.

2. Logic: Inductive and Deductive. (3 Hrs.) A study of the origin, development, structure, and function of knowledge. Practice in inductive methods and logical analysis. The nature and function of observation, method, judgment, hypothesis, inference, definition, syllogism, nature of evidence, etc., will be examined.

First semester; Tu. Th., 8:00; a third hour to be arranged; 17 W.

3. Introduction to Philosophy. (2 Hrs.) A study of the meaning and scope of philosophy, its typical problems, its relations to science, society, government, morality, and religion.

Second semester; Tu., Th., 8:00; 16 W.

4. History of Philosophy. (3 Hrs.) A study of the history of reflective thinking on the problems of human life and the world order will be traced in outline with the emphasis on modern philosophic doctrines and scientific movements.

First semester; M. F., 10:00, and a third hour to be arranged; 16 W.

5. History and Phiposophy of Religion. (2 Hrs.) A brief history of the Hebrew religion and a more detailed study of the history and philosophy of the Christian religion from its origin to the present time. The study will make an examination of the development of papacy, the protestant church, evolution and religion, and the present problems of the church.

Second semester; Tu. Th., 10:00, and a third hour to be arranged; 16 W.

6. Ethics. (3 Hrs.) A study of the fundamental principles of morals in the light of modern science. The nature of moral education and the relation of conduct to character in social, industrial, and political questions of today will be emphasized.

First semester; M. W. F., 9:00; 16 W.

7. Comparative Psychology. (3 Hrs.) This course will aim to present the facts of animal life from the standpoint of behavior. These facts will be used to interpret the mental development of the race. Prerequisite, Philosophy 1.

Second semester; M. W. F., 10:00; 17 W.

8. Modern Philosophy. (3 Hrs.) A study of representative systems, issues, and controversies of the present day together with their historic origins in philosophy.

Second semester; M. W. F., 11:00; 16 W.

PHYSICAL TRAINING

Director EDMUNDS and Miss OLIVER.

NOTE:—See also, Physical Training, page 23.

The purpose of the physical department is the development or restoration of the physical well-being of students attending the University. The director examines each student and prescribes exercises for his individual need. Special attention is given to those who are constitutionally weak.

The work is graded as much as possible to suit the needs of the students. Careful attention is given to correction of bad postural habits and to all-around development and training of the body.

Men's Department

Director EDMUNDS.

1. Elementary Gymnastics, Theory and Practice. (1 Hr.) The object is to give each student the principles of physical training in theory and practice that he may attain physical efficiency. Study of the various forms of exercise, the different systems, their value, nomenclature, the use of apparatus.

First semester; M. T. Th., 4:00; G.

2. Gymnastics, Recreation. Open to all students for general exercise, bodily development, and recreation. Winter months only; hour to be arranged.

3. Track Athletics. For those who wish to train systematically for track and field athletics.

First semester; M. W. F., 11:00; G.

4. General Athletic Training. Theory of training for all branches of athletics. Modern methods. Diet, sleep, and bathing.

Second semester; M. Th., 11:00; G.

Track Athletics. Theory and training. For track candidates. Spring months only; hour to be arranged; G.

Women's Department

Miss OLIVER.

10. Elementary Gymnastics. (1 Hr.) Tennis, basketball, graded gymnastics, apparatus work, controlling movements, folk dances, games.

First semester; hours to be arranged; 1 W.

11. Elementary Gymnastics. (1 Hr.) Continuation of physical training 10.

Second semester; hours to be arranged; 1 W.

12. Advanced Gymnastics. (1 Hr.) Basketball, tennis, light gymnastics, advanced apparatus exercises, æsthetic and rhythmic gymnastics, folk dancing. Prerequisite, Physical Training 10 and 11.

First semester; hours to be arranged; 1 W.

13. Advanced Gymnastics. (1 Hr.) Continuation of Physical Training 12.

Second semester; hours to be arranged; 1 W.

14. Normal Course in Theory and Practice of Gymnastics. (1 Hr.) Study of the theory of gymnastics, the values and limitations of gymnastics, the place of play and athletics, practice in teaching gymnastics and coaching athletics, emergency work, problems of personal hygiene. Prerequisite, Physical Training 10, 11, 12 and 13.

First semester; hours to be arranged; 1 W.

15. Physical Education in Elementary and Secondary Schools. (1 Hr.) Open to all students. Characteristics, tendencies, and needs of children and adolescents with special application to school conditions; practical problems of recess, playground, and gymnasium; the physical, social and moral questions.

Second semester; hours to be arranged, 1 W.

PHYSICS

Professor WAGGONER and Mr. MOON.

NOTE:—For description of the physical laboratories see page 20.

The various courses offered in physics are designed to meet the needs of the students in the Colleges of Arts and Sciences, Agriculture, and Engineering. For students who expect to teach physics the laboratory offers unusual facilities for individual laboratory work and the construction of apparatus.

1. Introductory Physics. (3 Hrs.) Primarily for freshmen. Required of students in the College of Agriculture, and recommended for all students in the College of Arts and Sciences who elect physics from the science group for the requirement of A.B. or B.Sc. The course is based on Kimball's College Physics and consists of lecture demonstrations and quizzes. The aim is to present the fundamental principles of physics and their application to every day life. See course 2 below. Prerequisite, plane geometry.

First semester; lectures, M .W., 8:00; Professor WAGGONER, 11 S; Quiz, F., 8:00; Mr. MOON.

2. Introductory Physical Laboratory. (1 Hr.) This course accompanies, and is required of all students who take course 1. The course consists of individual, quantitative, determinations of the various physical constants, and occupies one laboratory period per week.

First semester; section 1, T., 2:00; section 2, Th., 2:00; Mr. MOON, 14 S.

3. Introductory Physics. (3 Hrs.) A continuation of course 1 which is a prerequisite. See course 4 below.

Second semester; hours as in Course 1; Professor WAGGONER and Mr. MOON, 11 S.

4. Introductory Physical Laboratory. (1 Hr.) A continuation of Course 2, which is a prerequisite.

Second semester; hours as in Course 2; Mr. MOON, 14 S.

6. General Physics. (4 Hrs.) Required of all candidates for engineering degrees, and recommended for all students in Arts and Sciences who elect physics from the science group for the requirements of A.B. and B.Sc. Lectures and recitations based on Duff's "Textbook of Physics." The course aims to give a thorough drill in the derivation of the mathematical statements of the laws of physics and their application to the solution of engineering problems. Prerequisites, analytical geometry and one full unit of entrance physics. See course 7 below.

First semester; T. W. Th. F., 9:00; Professor WAGGONER, 11 S.

7. General Physical Laboratory. (1 Hr.) This course accompanies and is required of all students who take Course 6. The work is designed primarily for engineering students and occupies one laboratory period per week. No student will be permitted to enter this course until he has presented to this department a satisfactory note book such as is specified in the entrance requirements for this University.

First semester; Section, 1, M., 9:00 to 11:00.
Section 2, M., 2:00 to 4:00; Mr. MOON, 2 S.

8. General Physics. (4 Hrs.) A continuation of Course 6 which is a prerequisite.

Second semester; hours as in Course 6.

9. General Physical Laboratory. (1 Hr.) A continuation of Course 7, which is a prerequisite.

Second semester; hours as in Course 7.

10. Electrical Measurements. (4 Hrs.) This course is designed for, and required of the candidates for the degree of B.S.M.E., and B.S.E.E. It consists of the study of photometry, magnetic properties of materials, the theory, calibration, and use of various electrical instruments. Prerequisites, Physics 6, 7, 8 and 9, and integral calculus.

First semester; T. Th., 11:00; laboratory, W., 2:00 to 4:00; Professor WAGGONER and Mr. MOON, 11 S.

16. Advanced Physical Laboratory. This work is individual laboratory work and the credit depends upon the amount of work done. Precise measurements in physics. A laboratory course open to students who have completed Physics 6, 7, 8, 9, and integral calculus.

Hours to be arranged; Professor WAGGONER, 11 S.

18. Heat. (4 Hrs.) Lectures and laboratory; based on Edser's "Heat for Advanced Students." The laboratory work consists of the critical study of thermometers and pyrometers, their construction, calibration and use in high temperature measurements, electric furnace construction, quantitative determination of the various heat quantities and the melting and boiling points of various metals and fluids. Prerequisites: Physics 6, 7, 8, 9, and integral calculus. (Omitted in 1913-14.)

First semester; T. Th. F., 10:00; laboratory T., 2:00 to 4:00; Professor WAGGONER, 11 S.

19 Heat. (4 Hrs.) A continuation of Course 18 which is a prerequisite.

Second semester; hours as in Course 18.

22. Light. (4 Hrs.) Lectures and laboratory work; based on Edser's "Light for Students." The laboratory work consists of a photometric and spectrophotometric study of light sources, and the methods of artificial illumination, the study of the various optical lens systems, spectrum analysis and the use of the polariscope. Prerequisites: Physics 6, 7, 8, 9, and integral calculus. (Omitted 1913-14.)

First semester; T. Th. F., 10:00; laboratory, T. 2:00 to 4:00; Professor WAGGONER, 11 S.

23. Light. (4 Hrs.) A continuation of Course 22 which is a prerequisite.

Second semester; hours as in Course 22; Professor WAGGONER, 11 S.

25. Advanced Electricity and Magnetism. (4 Hrs.) Lectures and laboratory work. The lectures will be based on Hadley's "Magnetism and Electricity.' Prerequisites: Physics 6, 7, 8, 9, and integral calculus.

First semester; T. Th. F., 10:00; laboratory T. 2:00 to 4:00; Professor WAGGONER, 11 S.

26. Advanced Electricity and Magnetism. (4 Hrs.) A continuation of Course 25 which is a prerequisite.

Second semester; hours as in Course 25.

PHYSIOLOGY

For announcements of courses in this subject, see page 96.

PUBLIC SPEAKING

Professor NEIL

The purpose of this department is to prepare students for the work of public speakers and readers; to train students to teach reading and public speaking in schools and colleges; and to enable such students as do not expect to be professional speakers, to get the greatest possible good from the printed page and to express themselves in an easy and effective manner.

61. The Psychology of Speech. (3 Hrs.) Required of all students who make English their major. A practical study of the principles of psychology as employed in the development of imagination, conception, memory, and emotion for speech.

First semester; M. W. F., 11:00; Professor NEIL, 14 M.

62. The Psychology of Speech. (3 Hrs.) Continuation of Course 61. An application of the principles of psychology to the development of voice and action in speech. This course is designed to give the student an effective and unconscious use of the fundamental modes of emphasis: pause, change of pitch, inflection, subordination, movement, tone-texture, and touch. Prerequisite: Course 61.

Second semester: M. W. F., 11:00; Professor NEIL, 14 M.

63. Literary Analysis, Synthesis and Rendition. (2 Hrs.) Designed as supplementary study for students who have completed

Courses 61 and 62. An analysis of all the psychological elements entering into a limited number of short classics from English literature; a synthesis of these elements into original thinking and feeling; and the training of this thought and feeling into effective delivery of the selections studied. Prerequisites: Courses 61 and 62.

First semester: Tu. Th., 11:00; Professor NEIL, 14 M.

64. The History of Oratory. (2 Hrs.) A study of the sources, characteristics, and results of the great periods of oratory. A study of the individual work and worth of the most noted orators. Extemporaneous reports on these subjects by the students.

First semester; Tu. Th., 9:00; Professor NEIL, 14 M .

65. Original Orations. (2 Hrs.) Designed to follow Course 64 and to give the student thorough fundamental training in writing and presenting a formal speech. A study of the sources of clearness, elegance, force and persuasion; development of these in the individual student.

Second semester; Tu. Th., 9:00; Professor NEIL, 14 M.

66. Argumentation and Debate. (2 Hrs.) Required of all candidates for the LL.B. degree. A study of the laws of argumentation; training in the statement and analysis of subjects for debate; training in gathering and tabulating material for proof; training in construction of briefs and writing of arguments; oral presentation of short arguments and debates.

First semester; Tu. Th., 10:00; Professor NEIL, 14 M.

67. Advanced Argumentation and Debate. (2 Hrs.) Continuation of Course 66. Required of all candidates for the LL.B. degree. Critical study of noted specimens of argumentation; research work on live questions of the day; writing of briefs and arguments on these questions; extemporaneous speeches and debates.

Second semester; Tu. Th., 10:00; Professor NEIL, 14 M.

68. Dramatic Study of Shakespeare. (2 Hrs.) A psychological analysis of the setting, the characters, the plot and the purpose of one of Shakespeare's plays; synthesis of these elements into simple and effective acting; memoriter presentation of the play studied. Prerequisite: Course 61.

Second semester; Tu. Th., 11:00; Professor NEIL, 14 M.

69. Vocal Interpretation of the Bible. (2 Hrs.) Designed for advanced students in literature. The object of this course is to teach the student the literary worth of the Bible, its narrative, didactic, allegorical, dramatic, oratorical, lyric, and epic spirit. This is

accomplished through psychological study and vocal rendition of Biblical selections. Prerequisite: Course 61. (Omitted 1913-14.)

Second semester; Tu .Th., 11:00; Professor NEIL, 14 M.

70. Extemporaneous Speaking. (2 Hrs.) Required of all candidates for the baccalaureate degree in the college of agriculture. An analysis of noted extemporaneous speeches, with reference to clearness, strength, and persuasion. A study of subjects appropriate for extemporaneous speaking. Research work upon these subjects. Presentation of speeches before the class.

First semester; M. F., 10:00; Professor NEIL, 14 M.

71. Extemporaneous Speaking. (2 Hrs.) A continuation of course 70.

Second semester; M. F., 10:00; Professor NEIL, 14, M.

72. Dramatization and Adaption. (1 Hr.) Open to students who have completed courses 61, 62, 63, and 68. A study in adapting short stories for public presentation. An examination of the qualities which fit a story for public use. Original adaptations required of each student. Practical training in the presentation of these.

First semester; W., 9:00; Professor NEIL, 14 M.

73. Dramatization and Adaption. (1 Hr.) A continuation of the study begun in course 72. Original work in dramatizing a novel. Practical training in the presentation of the story dramatized.

Second semester; W., 9:00; Professor NEIL, 14 M.

74. The Teaching of Reading and Speaking. (2 Hrs.) Open to those who have completed courses 61, 62, 63, and 66. Designed as a special training for those who expect to teach public speaking, and for those who expect to teach reading in the high schools. An examination of the modern methods of teaching reading and speaking. Practical training in teaching these subjects. (Omitted in 1913-14.)

First semester; M. F., 9:00; Professor NEIL, 14 M.

75. The Teaching of Reading and Speaking. (2 Hrs.) Open to those who have completed courses 61, 62, 63, 66, and 74. Practical training in the teaching of more advanced courses in reading and speaking. (Omitted in 1913-14.)

Second semester; M. F., 9:00; Professor NEIL, 14 M.

Private Lessons

In addition to the class work in public speaking, a thorough and comprehensive course of individual instruction is offered. Each lesson occupies a full one-hour period, and is devoted to a single individual.

This branch of the work is indispensable to all who wish to follow any line of public speaking. The instruction may be taken either as single lessons or in courses of one semester each.

Hours Open for Private Pupils:

First semester; M. W. F., 9:00.

Second semester; M. W. F., 9:00.

Tuition for Private Lessons:

Single Lesson .....$ 2.50
One Semester, one lesson a week..... 30.00
One Semester, two lessons a week..... 50.00

All class work in public speaking is free to students enrolled in the University.

ROMANCE LANGUAGES AND LITERATURE

Professor STATHERS, Associate Professor DARBY and Mr. MOORE.

French

1. Elementary French. (5 Hrs.) Grammar, reading and composition. Stress is laid on the pronoun and verb. Constant practice in pronunciation and oral understanding. Fraser and Squair's French Grammar; Aldrich and Foster's French Reader.

First semester; first section, 8:00; Mr. MOORE, 22 W.
Second section, 11:00; Professor STATHERS, 11 W.
Second semester; 11:00; Mr. MOORE, 22 W.

2. Modern French. (5 Hrs.) A continuation of course 1. Grammar, reading, composition and oral understanding. Aldrich and Foster's French Reader, Laurie's Mémoires d'un Collégien, Lamartine's Graziella.

Second semester; first section ,8:00; Mr. MOORE, 22 W.
Second section, 11:00; Professor STATHERS, 11 W.
First semester; 11:00; Mr. MOORE, L.

3. Fiction of the Nineteenth Century. (3 Hrs.) Reading and study of representative works from Mérimée, George Sand, Victor Hugo, Alphonse Daudet, Guy de Maupassant, Paul Margueritte, Pierre Loti, Anatole France.

First semester; M. F., 10:00; W., 2:00; Mr. MOORE, L.

4. Advanced Grammar and Composition. (2 Hrs.) Detailed study of the parts of speech and review of verbs. Composition and dictation based on matter illustrative of the work. Given in connection with course 3.

First semester; Tu. Th., 10:00; Mr. MOORE, L.

5. France and the French. (3 Hrs.) Study of the country from a commercial and geographical standpoint; Parisian and provincial life; conversation in French on questions of popular interest; collateral reading and reports.

Second semester; M. F., 10:00; W., 2:00; Mr. MOORE, L.

6. Drama of the Nineteenth Century. (2 Hrs.) Reading and study of several plays chosen from the works of Alfred de Musset, Scribe, Augier, Dumas, Bornier, Sardou, Lemaître, Rostand. Given in connection with course 5.

Second semester; Tu. Th., 10:00; Mr. MOORE, L.

7. The Classic School. (3 Hrs.) This course includes the study of the origin and development of classic literature and the lives and works of the leading authors from the pléiade to Molière. Lectures, readings and reports.

First semester; M. W. F., 9:00; Professor STATHERS, 11 W.

8. The Classic School After Molière. (3 Hrs.) A continuation of course 7, comprising the study of the remaining authors of the seventeenth century and the principal authors of the eighteenth century. Essays, collateral reading and reports on related topics of interest of the period.

Second semester; M. W. F., 9:00; Professor STATHERS, 11 W.

9. French Syntax and Narration. (2 Hrs.) Careful review of the parts of speech and study and application of them by means of original sentences. Narration in French of anecdotes and short stories both original and from texts.

First semester; Tu. Th., 9:00; Professor STATHERS, 11 W .

10. Advanced French Discourse. (2 Hrs.) A continuation of course 9. Study and application of idiomatic constructions in order to acquire facility in expression both in writing and in speaking. Paraphrasing and discussions in French based on subjects of moderate difficulty.

Second semester; Tu. Th., 9:00; Professor STATHERS, 11 W.

NOTE:—At least seven of the preceding courses are prerequisite to courses 11-22, which, as far as it is convenient, are given in French.

11. The Romantic Movement. (3 Hrs.) Lectures on the origin, development and decline of romanticism. Study of representative works of the first half of the nineteenth century. Essays, collateral reading and reports. (Omitted in 1913-14.)

First semester; M. F., 10:00; W., 2:00; Professor STATHERS, 11 W.

12. French Literature Since 1850. (3 Hrs.) Careful study of the different literary groups and schools of the period, critical reading of representative works of the leading authors and lectures on subjects of special interest. (Omitted in 1913-14.)

Second semester; M. F., 10:00; W., 2:00; Professor STATHERS, 11 W.

13. The Novel in France. (2 Hrs.) Origin and development of the novel, reading and comparison of representative work from the earliest appearance to the present time. Lectures, essays and reports.

First semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

14. French Lyric Poetry. (2 Hrs.) Critical reading of representative poems from Francois Villon to the present. Versification and poetic forms; lives and works of the leading poets and their groups and schools.

Second semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

15. French Genres and Style. (3 Hrs.) Origin and development of the different literary *genres;* comparative study of the style and diction of some of the best representatives of the various *genres* of modern French literature. Prerequisite: Courses 7, 8, 11, 12. (Omitted in 1913-14.)

First semester; M. W. F., 8:00; Professor STATHERS, 11 W.

16. Advanced Composition and Phonetics. (3 Hrs.) Study of phonetics and idiomatic construction accompanied by a systematic review of French syntax. Phonetic transcription and daily themes.

Second semester; M. W. F., 8:00; Professor STATHERS, 11 W.

17. Contemporary French Drama. (2 Hrs.) Lectures on the present tendencies of the French stage, its influence and its importance. Reading and reports on recent dramatic productions. (Omitted in 1913-14.)

First semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

18. Topic from Nineteenth Century Literature. (2 Hrs.) This course is based upon the life and works of some author of the period or upon some literary group whose works and influence are studied. (Omitted 1913-14.)

Second semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

19. Historical French Grammar. (3 Hrs.) Study of the origin and development of modern French syntax from popular Latin through old French and the various formative periods of the language. Reading of selected works best suited to illustrate this development.

First semester; M. W. F., 8:00; Professor STATHERS, 11 W.

20. Literature of the Sixteenth Century. (2 Hrs.) Lectures on the French Renaissance and study of the lives and works of Rabelais, Calvin, Marot, Montaigne. Essays and collateral reading. (Omitted in 1913-14.)

Second semester; Tu. Th., 8:00; Professor STATHERS, 11 W.

21. Old French. (2 Hrs.) Study of old French from the standpoint of derivation, inflection and syntax. Reading of selected and illustrative works. (Omitted in 1913-14.)

22. Literature of the Middle Ages. (2 Hrs.) General survey of the period and study of selections from leading literary productions from the eleventh to the close of the fifteenth century. (Omitted in 1913-14.)

Italian

31. Elementary Italian. (5 Hrs.) Pronunciation, grammar, easy reading, composition and oral understanding. Marinoni's Italian Grammar and Italian Reader.

First semester; 9:00; Professor DARBY, 14 W.

32. Modern Italian. (5 Hrs.) A continuation of course 31. Reading in class of Manzoni's I Promessi Sposi and selections from other modern authors. Composition, dictation and conversation.

Second semester; 9:00; Professor DARBY, 14 W.

33. Modern Italian Literature. (3 Hrs.) Study of the leading authors and reading of representative works from Italian literature of the eighteenth and nineteenth centuries. Collateral reading and reports.

First semester; M. F., 10:00; W., 2:00; Professor DARBY, 14 W.

34. Introduction to Early Italian Literature. (3 Hrs.) Lectures on Dante and his precursors, reading and study of selections from Dante, Bocaccio, Petrarch and Tasso. Collateral reading and reports.

Second semester; M. F., 10:00; W., 2:00; Professor DARBY, 14 W.

Spanish

41. Elementary Spanish. (5 Hrs.) Grammar and reading with practice in pronunciation, composition and oral understanding. Hills and Ford's Spanish Grammar and Fontaine's Flores de España.

First semester; 9:00; Mr. MOORE, 22 W.

42. Modern Spanish. (5 Hrs.) Reading and study of three or four wo ks selected from the following authors: Perez Galdós,

Valdés, Valera, Alarcón, Blasco Ibáñez, Selgas, Moratín, Nuñez de Arce, Echegaray, Ayala, Avellaneda. Composition and conversation.

Second semester; 9:00; Mr. MOORE, 22 W.

43. Commercial Spanish. (3 Hrs.) Business correspondence and commercial terms; conversation in Spanish on topics relating to travel, daily life and questions of present interest. Themes, collateral reading and reports.

First semester; M. F., 10:00; W., 2:00; Professor STATHERS, 11 W.

44. Classic Drama and the Age of Ceravntes. (3 Hrs.) Critical reading of selected works of Lope de Vega and Calderón and of extracts from Cervantes' Don Quijote de la Mancha. Papers on the lives, works, and times of these authors.

Second semester; M. F., 10:00; W., 2:00; Professor STATHERS, 11 W.

ZOOLOGY

Professor REESE and Dr. MORRIS.

NOTE:—For description of zoological laboratories see page 22.

The courses in this department are intended to serve as a means of general culture and to prepare students to become investigators and teachers of zoology. A wide field is offered for investigation in the organization, functions, habits, and evolution of animal life. Upon the results of such investigations rest to a large extent the sciences of medicine, psychology, and sociology. Courses 1, 2, 9, and 10 are of especial interest to teachers. Courses 1, 2, and 6 are required of students in the six-year medical course.

1. Animal Biology. (4 Hrs.) A study chiefly of invertebrate animals, with an introduction to the vertebrates. The study of structure is conducted with constant reference to function and adaptation, and the student performs simple experiments on the behavior of protozoa, hydra, earthworms, etc. A few lectures deal with the structure and physiology of the cell, reproduction, etc.

First semester; T. Th., 8:00; 49 W.; laboratory, Th. F., 2:00-4:30; Professor REESE and Dr. MORRIS, 50 W.

2. Vertebrate Zoology. (4 Hrs.) Dissection of the dogfish, frog, and cat. Lectures and recitations upon the biology, comparative anatomy, and evolution of vertebrates. Prerequisite: zoology 1 or an equivalent.

Second semester; same hours as Zoology 1; Professor REESE and Dr. MORRIS, 50 W.

6. Vertebrate Embryology and Neurology. (4 Hrs.) Cleavage, gastrulation and the formation of the germ layers are studied in the frog and chick; the development of organs in the chick and pig. These materials are supplemented by sections, dissections, and cleared preparations of human embryos. The last four weeks are devoted to the dissection of the sheep's brain, and to the study of dissections of human brains. Reese's Vertebrate Embryology, and Burkholder's Anatomy of the Brain. Prerequisite: Course 2 or an equivalent.

First semester; M. T. Th. F., 10:00-12:00; W. 11:00; Professor REESE. 50 W.

9. Methods in Zoology. (2 or 3 Hrs.) A practical course in the methods of collecting, preserving, injecting, making microscopic preparations etc. Prerequisite: Courses 1 and 2 or an equivalent.

First or second semester; hours to be arranged, Professor REESE and Dr. MORRIS, 51 W.

10. Principles of Biology. (3 Hrs.) This course deals with the conditions of animal life and the means of adaptation. It includes the study of habits, reactions, food relations, coloration, regeneration, etc.; the course of organic evolution; theories regarding the origin of species, heredity, etc. Lectures, recitations and assigned readings. Prerequisite: Course 1 or an equivalent.

Second semester; M. W. F., 11:00; Professor REESE, 49 W.

15. Comparative Anatomy and Embryology. (Credit in proportion to work done.) An advanced course; to be taken ordinarily only after all of the preceding courses have been completed.

First or second semesters; hours to be arranged; Professor REESE, 51 W.

19. Current Literature. (1 Hr.) Designed for advanced or graduate students. The purpose of this course is to familiarize the student with the character of the work that is being published in the best-known American and foreign zoological journals.

First or second semester; hour to be arranged; Professor REESE, 52 W.

20. Research Work. (Credit in proportion to work done.) Properly qualified students may undertake research work upon the anatomy or physiology of animals.

First or second semesters; hours to be arranged; Professor REESE, 51 W.

NOTE:—For courses in entomology see page 76.

THE COLLEGE OF ENGINEERING AND MECHANIC ARTS

FACULTY

THOMAS EDWARD HODGES, LL.D., *President*

CLEMENT ROSS JONES, B.S.C.E., M.M.E., *Dean and Professor of Steam and Experimental Engineering*

FREDERICK LINCOLN EMORY, B.S., M.M.E., M.E., *Professor of Mechanics and Applied Mathematics*

RUSSELL LOVE MORRIS, C.E., *Professor of Railway and Highway Engineering*

EDWIN FAYETTE CHURCH, Jr., M.S. in M.E., *Professor of Machine Design and Construction*

WILLIAM ELMORE DICKINSON, A.B., M.M.E., *Professor of Electrical Engineering*

EDWARD NATHAN ZERN, B.S., E.M., *Professor of Mining Engineering*

ROLAND PARKER DAVIS, S.B., M.C.E., *Professor of Structural and Hydraulic Engineering*

JOHN B. GRUMBEIN, B.S.M.E., *Assistant Professor of Mechanical Engineering*

THOMAS HOWARD CATHER, *Instructor in Machine Shop and General Foreman of Shops*

RAYMER EGBERT SEAMAN, *Instructor in Woodworking and Foundry Practice*

RUFUS A. WEST, *Instructor in Metal Working and Stationary Engineer*

GEORGE WALTER GROW, B.S.M.E., *Assistant in Experimental Engineering and Drawing*

ALEXANDER REID WHITEHILL, PH.D., *Professor of Chemistry*

SAMUEL B. BROWN, A.M., *Professor of Geology and Mineralogy*

FREDERICK LAWRENCE KORTRIGHT, D.SC., *Professor of Chemistry*

JOHN ARNDT EIESLAND, PH.D., *Professor of Mathematics*

CHAUNCEY WILLIAM WAGGONER, PH.D., B.S.C.E., *Professor of Physics*

WILLIAM JACKSON LEONARD, *Associate Professor of Fine Arts*

DAVID DALE JOHNSON, A.M., *Associate Professor of English*

CHARLES MOON, B.S.C.E., *Instructor in Physics*

FACULTY COMMITTEES

Engineering Curricula. Dean JONES, Professors MORRIS, CHURCH DICKINSON, DAVIS, and ZERN.

Engineering Society. Professors EMORY, MORRIS, and DICKINSON, Assistant Professor GRUMBEIN, and Mr. GROW.

Library. Professor CHURCH, and Professor DAVIS.

Trade Literature. Assistant Professor GRUMBEIN.

ORGANIZATION

The College of Engineering contains the following departments:

Electrical engineering.
Machine design and construction.
Mechanics and applied mathematics.
Mining engineering.
Railway and highway engineering and surveying.
Steam, gas, and experimental engineering.
Structural and hydraulic engineering.

BUILDINGS AND EQUIPMENT

All instruction in engineering subjects is centralized in the Mechanical Hall. This building is located on the southeast corner of the campus and fronts the athletic field. It really consists of two buildings connected by covered passageways. The main building is 168½ feet long and three stories high, with a well-lighted basement running under its entire length. In this building are the lecture, recitation, drawing, and instruction rooms of the various engineering departments, the machine and woodworking shops, and the mechanical and electrical laboratories. The rear building, known as the power plant, is one story in height and contains the boiler and engine rooms, the forge shop, the foundry, and the sheet metal and pipe fitting shop. The drawing rooms, shops, power plant, and laboratories are equipped with modern apparatus and machinery for practical and experimental work.

In the drawing rooms are collections of models of bridges, furnaces, structures, mechanisms, engines, pumps, valves and valve gears; descriptive geometry models; sets of charts, state and government maps, surveys, photographs, engineering specifications, drawings, tracings, and blue prints. In connection with the drawing rooms there is a blue printing and photographic room and dark closet, equipped with electric and sun printing apparatus and photographic outfit.

The shops consist of a woodworking shop, forge shop, foundry, machine shop, and sheet metal and pipe fitting shop. Each work shop occupies a separate room and is independently equipped with suitable benches, measuring instruments, tools, shop appliances, and machines, such as are ordinarily installed in the larger engineering colleges and commercial shops. These afford ample facilities for performing all the fundamental operations in machine construction and for building machines of moderate size.

The power plant equipment consists of different types of steam and gas engines, direct-connected or belted to electric generators; a 100 K. W. Westinghouse condensing steam turbine direct-connected to a direct current generator; steam boilers, equipped for burning both gas and coal; an independently fired superheater; pumps, condensers, air compressors, steam traps and other auxiliary apparatus, providing the means for furnishing any desired kind of power. The power for the shops and laboratories is ordinarily obtained from a 50-H. P. Westinghouse direct current generator, from which it is distributed to motors or other apparatus, but this

can be increased by operating independently, or in parallel, one or more additional machines driven by the steam turbine, the steam engines, or by a rotary converter connected with the city mains. Single and two-phase alternating current may be obtained from city mains or from a 20-K. W. motor generator set, and one, two, and three-phase current may be developed by a double-current dynamo driven as an inverse converter or as an alternating current dynamo.

The engineering laboratories are fitted with standard gauges, measuring, calculating, and recording instruments; apparatus and appliances for qualitative and quantitative experimental work in civil, mechanical, steam, hydraulic, electrical and mining engineering.

The testing laboratory is equipped with apparatus and machines for testing cement, iron, steel, brick, stone, and other materials of engineering. The principal machines and apparatus are an Olsen testing machine of 400,000 pounds capacity, taking tension and compression specimens up to six feet, and beams up to sixteen feet in length; a 50,000-pound Riehle testing machine; a 20,000-pound Riehle automatic and autographic testing machine; a 10,000-pound Olsen transverse testing machine; a 60,000 inch-pound Riehle-Miller torsion machine; two Fairbanks and one Olsen cement testers; a standard abrasion cylinder; a stone saw; besides smaller apparatus for testing cement, lubricating oils, and extension and deflection of materials.

The mechanical and steam laboratories contain small steam and gas engines, a compound air compressor with electrical and mechanical control, Westinghouse air brake apparatus, rotary air motors, a hot air engine, a small vertical steam boiler, a direct steam driven ventilating fan, dynamometers, friction brakes, condensers, injectors and ejectors, steam and gas engine indicators, revolution counters, planimeters, anemometers and apparatus for testing pressure gauges, indicator springs, thermometers, flow of steam and air through nozzles, etc. These are supplemented by the power plant equipment previously described, which affords facilities for steam and gas engine trials and boiler tests with larger units, and also provides facilities for various lines of experimental investigation.

The electrical laboratory is provided with a number of small compound, shunt and series-wound direct current generators and motors, ranging from 2½ to 20 kilowatt, two and three-phase alternating current generators and motors of frequencies from 20 to 133 cycles, and capacities ranging from 2 to 20-kilowatt; rotary

converter and motor generator sets; an 8-horse-power variable speed Stow motor, driving a 5-kilowatt, 2-phase, 220-volt, 10-pole alternator, which may give any frequency from 40 to 133 cycles; a 3-horse-power inter-pole motor; a 3-horse-power Thompson-Ryan variable speed motor, which, driving a small alternator, affords frequencies from 15 to 60 cycles; a 5-horse-power Lamme series single-phase motor; a 3-horse-power self-starting, Century, single-phase induction motor; a 5-horse-power General Electric, single-phase motor; a 10-horse-power Stanley 2-phase induction motor equipped with compensator, condenser, and transformers; a 10-horse-power Sprague electric dynamometer; various types of Cutler-Hammer and other speed regulating and controlling apparatus; static, auto and constant-current transformers; a welding transformer; a high potential transformer for testing insulation, etc.; a Thodarson set of experimental apparatus for demonstrating any of the principles of electricity; a Queen & Co.'s testing set, with standards of capacity, induction and resistance, and with a potentiometer and standard cell, for standardizing electrical instruments; a General Electric oscillograph with accessories; standard and commercial indicating and recording measuring instruments; synchronism and power-factor indicator; dynamometers; permeameters; galvanometers; tachometers and speed counters; rheostats of various types and capacities; and six distributing panels of switchboard. The photometric and the storage battery equipments of the department of physics are also available in connection with the above. This is also supplemented by the larger generating and controlling units in the power plant.

The hydraulic laboratory equipment consists of a compound duplex steam pump supplying water to a closed steel pressure tank, from which run headers arranged for the insertion of orifices, nozzles, and pipes supplying the various hydraulic motors; concrete storage tanks; measuring tanks and weighing scales; Cascade water wheels; Venturi meter, water meters, steel weir-box, weir-gauges, and other minor measuring and controlling apparatus.

The passenger locomotive donated by the Baltimore & Ohio Railroad Company furnishes a nucleus for instruction in railway engineering.

The Ingersoll-Rand and Sullivan Machinery Companies have each recently furnished the department of mining engineering with a compressed air mining machine and also with a rock drill and tripod mounting complete.

Transits, levels, compasses, etc., are provided for the use of

students in land and mine surveying and in highway and railway construction.

The latest trade literature, catalogues, and reports of commercial developments in engineering are kept in classified files for students' reference. The University library has a thoroughly classified and indexed collection of the standard and latest books in engineering and the allied sciences, complete bound sets of the transactions of several scientific and engineering societies, and current issues and bound volumes of the principal scientific and technical periodicals.

FACILITIES FOR PRACTICAL WORK

The University is located in a region which affords the student unusual opportunities for practical observation and education in engineering. Morgantown is situated practically at the edge of three extensive coal regions; the Fairmont, the Deckers' Creek and the Connellsville fields. The nearest large workings in the Pittsburg coal seam are within a mile of the University, and the nearest in the Upper Freeport vein are only four miles away. Connellsville is only forty-five miles distant from Morgantown, and Pittsburg, the center of the world's greatest iron and steel industries, is 103 miles distant.

West Virginia's gas and oil districts approach within four miles of Morgantown and supply fuel for numerous factories. There are two brick works in the city, making building and paving brick from the local clay and shale; and twelve glass factories in the vicinity, producing pressed, plate, cut window, and bottle glass from the adjoining sandstone beds. At Mannheim is a large portland cement mill and another is being erected in the Deckers' Creek valley.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE OF ENGINEERING

ADMISSION TO REGULAR CURRICULA

The subjects and number of units in each required for admission to the regular four-year engineering curricula are as follows:

English	3
Foreign Language	3
Algebra	1½
Plane and solid geometry	1½
Physics with laboratory	1
History	1
Free hand drawing	1
Elective	2
Total	14

Students are recommended to meet the foreign language requirement by offering two units in German and one unit in French. The electives may be selected from the list on page 50 of the catalogue.

Students who do not offer free hand drawing for entrance but offer full fourteen units including all other required subjects will be required to take at least two hours of free hand drawing in the college in addition to the regular curriculum.

ADMISSION WITH ADVANCED STANDING

Students from other institutions will be given credit for work already done in accordance with the general rules for advanced standing on page 27 of the catalogue but at least one year resident work will be required for any of the baccalaureate degrees in engineering.

ADMISSION AS SPECIAL STUDENTS

Students desiring to take special work in the College of Engineering and Mechanic Arts are required to conform to the general regulations of the University regarding special students. (See page 26.) Such students must give satisfactory evidence that they are prepared to take the desired studies advantageously; but if they subsequently desire to become candidates for a degree, or to take a regular curriculum in engineering, they must pass the required entrance examination for that year.

CREDIT FOR WORK DONE IN ABSENCE

Students of the College of Engineering are permitted to apply for advanced standing for not more than six hours credit for practical work in the following subjects done in the field, shops, or drafting room, during vacation or other periods of absence from the University: Woodworking (Courses 1, 2, and 3), Pattern making (4), Foundry practice (5), Forging (7), Metal working (9), Pipe fitting (10), Bench and vise work (12), Machine tool work (14), Machine construction (15) Electrical construction (18), Mechanical drawing (20, 22, 24, and 25).

THE ENGINEERING CURRICULA

The College of Engineering offers to students three different kinds of curricula:

1. Regular curricula for undergraduate students.
2. Curricula for graduate students.
3. Special curricula for special students and students of other colleges.

REGULAR CURRICULA FOR UNDERGRADUATE STUDENTS

1. A four-year curriculum leading to the degree of Bachelor of Science in Civil Engineering.

2. A four-year curriculum leading to the degree of Bachelor of Science in Mechanical Engineering.

3. A four-year curriculum in electrical engineering leading to the degree of Bachelor of Science in Electrical Engineering.

4. A four-year curriculum leading to the degree of Bachelor of Science in Engineering of Mines.

REQUIREMENTS FOR GRADUATION

To receive any of the baccalaureate degrees conferred in the College of Engineering the student must have satisfied all the entrance requirements as stated above on page 118 and must have received credit for one hundred and forty-eight semester hours, including four weeks summer practice equivalent to four semester hours. The particular curriculum and distribution of work prescribed for each degree as stated below.

THESES

Every candidate for a baccalaureate or graduate degree in engineering will be required to prepare a thesis on some subject relating to a special branch of engineering or other department of applied science. The thesis must be either a design or a review of some machine, structure, or process, belonging to some department of scientific investigation. It must be fully elaborated and accompanied by the necessary working drawing or models required for the proper elucidation of the subject of the thesis. With its accompanying drawings it will be presented for approval, first to the instructor under whose guidance it has been prepared, then to the head of the department in which the degre is to be conferred. A typewritten copy of the thesis, prepared according to official specifications for theses, and signed by the instructor in charge and the head of the department, must be placed in the University library before graduation.

ENGINEERING SOCIETY

The Engineering Society is conducted by the students of the College of Engineering under the direction of a faculty committee. The society meets once in two weeks for the investigation and discussion of scientific subjects. All engineering students are urged to join the society immediately upon entrance to the college and to perform such work as its rules require. Students taking any of the four-year curricula leading to the baccalaureate degrees in engineering are required to engage actively in the work of the society during the third and fourth years. A credit of one hour will be given for the work of each of the last two years.

UNDERGRADUATE CURRICULUM IN CIVIL ENGINEERING

Leading to the degree of Bachelor of Science in Civil Engineering

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00, Tu.W.F.or M.W.Th.	3	
Advanced algebra	(Math. 3)	9:00, M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00, Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00, M.W.F., 2:00, Tu. 1st half, M. 2nd half	4	
Military science 1		12:00, M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00, Th. 8:00 S. 1st half, 2:00, W.F. 2nd half	2	
Woodworking	(Eng'g 1)	2:00, M.W.F. 1st half	1½	
Elements of metal working	(Eng'g 9)	2:00, Tu.Th. 8:00 S. 2nd half	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng. 2)	8:00, Tu.W.F.or M.W.Th.	3	
Analytical geometry	(Math. 5)	9:00, M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00, Tu.Th.	2	
Land surveying	(Eng'g 100)	10:00, M.Th.F.	3	
Inorganic chemistry	(Chem. 2)	11:00, M.W.F., 2:00 M.	4	
Military science 2		12:00, M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00, Tu.Th.	2	18

Second Year—First Semester

Differential calculus	(Math 7)	8:00 M.W.F. and Study period Tu.Th.	3	
General physics	(Physics 6, 7)	9:00 Tu.W.Th.F., 2:00 M.	5	
Descriptive geometry	(Eng'g 26)	10:00 Tu.Th.F.	3	
Adv. surveying	(Eng'g 102)	11:00 Tu.Th.	2	
Military science 3		12:00 M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00 Tu.Th.	2	
Mechanical drawing	(Eng'g 25)	2:00 W.F.	2	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00 M.W.F. and Study period Tu.Th.	3	
General physics	(Physics 8, 9)	9:00 Tu.W.Th.F. 2:00 M.	5	
Statics	(Eng'g 70)	10:00 Tu.Th.F.	3	
Mechanism	(Eng'g 29)	11:00 Tu. Th.	2	
Topographical surveying	(Eng'g 103)	11:00 M.W.	2	
Military science 4		12:00 M.Tu.W.Th.	1	
Mechanism drawing	(Eng'g 30)	2:00 Tu.Th.	2	18

Summer Practice (Four Weeks)

Summer field practice	(Eng'g 110)	Daily 8:00—12:00 1:00— 5:00	4

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00 Tu.W.Th.F.	4	
Railway location	(Eng'g 104)	9:00 M.W.F.	3	
Elementary steam and gas engineering	(Eng'g 120)	10:00 M.Tu.F.	3	
General geology	(Geology 2)	11:00 M.W.F	3	
Applied electricity	(Eng'g 51)	11:00 T.Th. and 9:00 Th.	3	
Mechanical lab.	(Eng'g 130)	8:00 S.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00 Tu.Th.F.	3	
Hydraulics	(Eng'g 73)	8:00 M.W.	2	
R'w'y. maintenance	(Eng'g 105)	9:00 M.W.F.	3	
Roofs and bridges	(Eng'g 141)	10:00 M.Tu.Th. 2:00 to 5:00 Th.	4	
Economic geology	(Geology 4)	11:00 M.W.F.	3	
Mechanical lab.	(Eng'g 131)	8:00 S.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.	1	18

Fourth Year—First Semester

Water supply engineering	(149)	8:00 M.W.F.	3	
Sanitary engineering	(148)	8:00 Tu.Th.	2	
Masonry and foundations	(Eng'g 146)	9:00 M.W.F.	3	
Bridge design	(Eng'g 142)	9:00 Tu. Lecture 10:00 Tu. 9:00 Th. 2:00 W.F. Drawing	5	
Tunnelling	(Eng'g 88)	10:00 M.F.	2	
Roads and pavements	(Eng'g 106)	11:00 M.W.F.	3	
Engineering Society	(Eng'g 163)	7:30 p.m. F.		18

Fourth Year—Second Semester

*Railroad econ.	(Eng'g 107)	11:00 Tu.Th.F. 3		
and Highway engineering	(108)	8:00 Tu.Th. 2		
or *Hydraulic con.	(Eng'g 150)	8:00 Tu.Th.F. 11:00 W. 4	5	
and Hydraulic measurements	(Eng'g 151)	2:00 to 5:00 M. 1		
Concrete const.	(Eng'g 147)	9:00 Tu.Th. 2:00 W.F.	4	
Adv. structures	(Eng'g 143)	9:00 M.W.F.	3	
Contracts and specifications	(Eng'g 161)	8:00 M.W.	2	
Thesis	(Eng'g 113 or 152)	To be arranged	3	
Engineering Society	(Eng'g 163)	7:30 p.m. F.	1	18

*Option selected should be announced at the beginning of the fourth year.

UNDERGRADUATE CURRICULUM IN MECHANICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Mechanical Engineering

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00 M.W.Th. or Tu.W.F.	3	
Advanced algebra	(Math. 3)	9:00 M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00 Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00 M.W.F., 2:00 W.	4	
Military science 1		12:00 M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00 M.F.	2	
Woodworking	(Eng'g 1)	2:00 Tu.Th., 8:00 S. 1st half	1½	
Foundry	(Eng'g 5)	2:00 Tu.Th. 8:00 S. 2nd half	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng. 2)	8:00 M.W.Th. or T.W.F.	3	
Analytical geometry	(Math. 5)	9:00 M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00 Tu.Th.	2	
Inorganic chemistry	(Chem. 2)	11:00 M.W.F., 2:00 W.	4	
Surveying	(Eng'g 101)	10:00 Tu. Practice Th.	1	
Military science 2		12:00 M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00 M.F.	2	
Pattern making	(Eng'g 4)	2:00 Tu., 8:00 S.	2	18

Second Year—First Semester

Differential calculus	(Math. 7)	8:00 M.W.F. Study periods Tu.Th.	3	
General physics	(Physics 6, 7)	9:00	5	
Descriptive geometry	(Eng'g 26)	10:00 Tu.Th.F.	3	
Military science 3		12:00 M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00 Tu.Th.	2	
Mechanical drawing	(Eng'g 24)	2:00 W.F. 1st half 2:00 W., 8:00, S. 2nd halt	2	
Forging	(Eng'g 7)	2:00 M. 8:00 S. 1st half	1	
Bench and vise work	(Eng'g 12)	2:00 M.F. 2nd half	1	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00 M.W.F. Study periods Tu.Th.	3	
General physics	(Physics 8, 9)	9:00	5	
Statics	(Eng'g 70)	10:00 Tu.Th.F.	3	
Mechanism	(Eng'g 27)	11:00 W.F.	2	
Military science 4		12:00 M.Tu.W.Th.	1	
Mechanism drawing	(Eng'g 28)	2:00 W., 8:00 S.	2	
Machine work: Sheet metal work	(Eng'g 13)	2:00 Tu.Th. 2nd half	1	
Pipe fitting	(Eng'g 10)	2:00 Tu.Th. 1st half	1	18

Summer Practice (Four Weeks)

Machine tool work	(Eng'g 14)	Daily—8:00-12:00 and 1:00- 5:00	4	

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00 T.W.Th.F.	4	
Thermodynamics	(Eng'g 121)	9:00 M.W.F.	3	
Electricity and mag.	(Physics 10)	11:00 Tu.Th. 2:00 W.	3	
Valve gears	(Eng'g 31)	11:00 M.W.	2	
Mechanical lab.	(Eng'g 130)	2:00 F.	2	
Machine drawing	(Eng'g 32)	2:00 Tu.Th.	2	
Machine const.	(Eng'g 15)	2:00 M., 8:00, S.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00 Tu.Th.F.	3	
Hydraulics	(Eng'g 73)	8:00 M.W.	2	
Heat engines	(Eng'g 122)	9:00 M.W.F.	3	
Machine design	(Eng'g 35)	10:00 M.F. 11:00 W.	3	
Mechanical lab.	(Eng'g 131)	2:00 Th.	2	
Machine drawing	(Eng'g 36)	2:00 M.F.	2	
Shop methods	(Eng'g 16)	11:00 M.F.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.	1	18

Fourth Year—First Semester

Power plant design	(Eng'g 123)	8:00 M.W.F.	3	
Electrical eng'g.	(Eng'g 53)	9:00 M.W.F.	3	
Steam engine design	(Eng'g 39)	10:00 M.Tu.F.		
or Adv. mach. design	(Eng'g 37)	11:00 M.F. 9:00 Tu.	3	
Structural eng'g.	(Eng'g 144)	11:00 Tu.W.	2	
Design. and drawing	(Eng'g 40)	2:00 Tu.W.Th.		
or Design. and D.	(Eng'g 38)	2:00 Tu.W.Th.	3	
Engineering lab.	(Eng'g 132)	8:00-12:00 Th.	2	
Electrical lab.	(Eng'g 62)	2:00 F.	2	
Engineering Society	(Eng'g 163)	7:30 p.m. F.		18

Fourth Year—Second Semester

Indust. management	(Eng'g 46)	8:00 F.	1	
Elements of electrical eng'g	(Eng'g 54)	10:00 M.F.	2	
Contracts and spec.	(Eng'g 161)	8:00 M.W.	2	
Electrical lab.	(Eng'g 63)	2:00 Tu.	1	
Engineering lab.	(Eng'g 133)	8:00 Th.	2	
Design. and drawing	(Eng'g 41)	2:00 M.W., 8:00, S	3	
Thesis	(Eng'g 49 or 135)	To be arranged	3	
Engineering Society	(Eng'g 163)	7:30 p.m. F.	1	
*Optional from following list			3	18
Historical development of power machinery	(Eng'g 128)	9:00 M.W.F.	3	
Steam turbines	(Eng'g 125)	9:00 M.W.F.	3	
Gas engines	(Eng'g 126)	11:00 M.W.F.	3	
Hydraulic const.	(Eng'g 150)	8:00 Tu.Th.F. and 11:00 W.	4	
Gas engine design	(Eng'g 45)	To be arranged	3	
Mach. and mill work	(Eng'g 42)	9:00 M.W.F.	3	
Heat and vent.	(Eng'g 127)	8:00 M.Tu.W.	3	
Steam boilers	(Eng'g 124)	To be arranged	2	

*Selection to be made at the beginning of the fourth year.

UNDERGRADUATE CURRICULUM IN ELECTRICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Electrical Engineering

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00	M.W.Th. or Tu.W.F.	3	
Advanced algebra	(Math. 3)	9:00	M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00	M.W.F., 2:00 Th.	4	
Military science 1		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00	Tu., 8:00, S.	2	
Woodworking	(Eng'g 1)	2:00	M.W.F., 1st half	1½	
Foundry	(Eng'g 5)	2:00	M.W.F., 2nd half	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng. 2)	8:00	M.W.Th. or T.W.F.	3	
Analytical geometry	(Math. 5)	9:00	M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 2)	11:00	M.W.F. and 2:00 W.	4	
Surveying	(Eng'g 101)	10:00	Tu. Practice S.	1	
Military science 2		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00	Tu.Th.	2	
Pattern making	(Eng'g 4)	2:00	M.F.	2	18

Second Year—First Semester

Differential calculus	(Math. 7)	8:00	M.W.F. Study Periods T.Th.	3	
General physics	(Physics 6, 7)	9:00		5	
Descriptive geometry	(Eng'g 26)	10:00	Tu.Th.F.	3	
Military science 3		12:00	M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00	Tu.Th.	2	
Mechanical drawing	(Eng'g 24)	2:00	M., 8:00, S.	2	
Forging	(Eng'g 7)	2:00	W.F. 2nd half	1	
Bench and vise work	(Eng'g 12)	2:00	W.F. 1st half	1	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00	M.W.F. Study periods T.Th.	3	
General physics	(Physics 8, 9)	9:00		5	
Statics	(Eng'g 70)	10:00	T.Th.F.	3	
Mechanism	(Eng'g 27)	11:00	W.F.	2	
Military science 4		12:00	M.T.W.Th.	1	
Mechanism drawing	(Eng'g 28)	2:00	W., 8:00, S.	2	
Machine work: sheet metal work	(Eng'g 13)	2:00	M.F. 1st half	1	
Pipe fitting	(Eng'g 10)	2:00	M.F. 2nd half	1	18

Summer Practice—(Four Weeks)

Machine tool works	(Eng'g 14)	8:00 to 12:00 1:00 to 5:00		4	

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00 Tu.W.Th.Fr.	4	
Thermodynamics	(Eng'g 121)	9:00 M.W.F.	3	
Valve gears	(Eng'g 31)	11:00 M.W.	2	
Electricity and mag.	(Physics 10)	11:00 Tu.Th. 2:00 W.	3	
Mechanical lab.	(Eng'g 130)	8:00-12:00 S.	2	
Machine drawing	(Eng'g 33)	2:00 M.Th.	2	
Machine const.	(Eng'g 15)	2:00 Tu.F.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00 Tu.Th.F.	3	
Heat engines	(Eng'g 122)	9:00 M.W.F.	3	
Machine design	(Eng'g 35)	10:00 M.F. 11:00 W.	3	
Direct current mach.	(Eng'g 52)	11:00 Tu.F. 9:00 Th.	4	
Mechanical lab.	(Eng'g 131)	8:00 S.	2	
Machine drawing	(Eng'g 36)	2:00 M.F.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.	1	18

Fourth Year—First Semester

Power plant design	(Eng'g 123)	8:00 M.W.F.	3	
Theory of alternating currents	(Eng'g 55)	10:00 M.F. 9:00 W.	3	
Electric traction and transmission	(Eng'g 57)	11:00 M.W.F.	3	
Electrical lab.	(Eng'g 60)	8:00 Tu.	2	
Engineering lab.	(Eng'g 132)	8:00 Th.	2	
Designing and drawing	(Eng'g 59)	2:00 Tu.W.Th.	3	
Thesis	(Eng'g 69)	To be arranged	2	
Engineering Society	(Eng'g 163)	7:30 p.m. F.		18

Fourth Year—Second Semester

Hydraulics	(Eng'g 73)	8:00 M.W.	2	
Industrial management	(Eng'g 46)	8:00 F.	1	
Alternating current machinery	(Eng'g 56)	9:00 M.W.F.	3	
Elecltric lighting and signaling	(Eng'g 58)	11:00 M.W.F.	3	
Electrical lab.	(Eng'g 61)	8:00 Tu.	2	
Engineering lab.	(Eng'g 133)	8:00 Th.	2	
Designing and drawing	(Eng'g 41)	2:00 M.W., 8:00, S.	3	
Thesis	(Eng'g 69)	To be arranged	1	
Engineering Society	(Eng'g 163)	7:30 p.m. F.	1	18

UNDERGRADUATE CURRICULUM IN MINING ENGINEERING

Leading to the Degree of Bachelor of Science in Engineering of Mines.

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00	Tu.W.F. or M.W.Th.	3	
Advanced algebra	(Math. 3)	9:00	M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00	M.W.F., 2:00, M.	4	
Military science 1		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00	W.F.	2	
Woodworking	(Eng'g 1)	2:00	Tu.Th.,8:00,S.1st half	1½	
Elements of metal working	(Eng'g 9)	2:00	Tu.Th., 8:00, S. 2nd half	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng. 2)	8:00	Tu.W.F. or M.W.Th.	3	
Analytic geometry	(Math. 5)	9:00	M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00	Tu.Th.	2	
Land surveying	(Eng'g 100)	10:00	M.Th.F.	3	
Inorganic chemistry	(Chem. 2)	11:00	M.W.F., 2:00 M.	4	
Military science 2		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00	Tu.Th.	2	18

Second Year—First Semester

Differential calculus	(Math. 7)	8:00	M.W.F. and study period Tu.Th.	3	
General physics	(Physics 6, 7)	9:00	Tu.W.Th., 2:00 M.	5	
Descriptive geometry	(Eng'g 26)	10:00	Tu.Th.F.	3	
Advanced surveying	(Eng'g 102)	11:00	Tu.Th.	2	
Military science 3		12:00	M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00	Tu.Th.	2	
Mechanical drawing	(Eng'g 25)	2:00	W.F.	2	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00	M.W.F., and study period Tu.Th.	3	
General physics	(Physics 8, 9)	9:00	Tu.W.Th.F. 2:00 M.	5	
Statics	(Eng'g 70)	10:00	Tu.Th.F.	3	
Mine surveying	(Eng'g 80)	11:00	M.W.F. and 8:00 S.	4	
Military science 4		12:00	M.Tu.W.Th.	1	
Quantitative analysis	(Chem. 6)	Hours to be arranged		2	18

Summer Practice

Summer field practice	(Eng'g 110)	Four weeks, daily 8:00 12:00; 1:00-5:00	4	

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00 Tu.W.Th.F.	4	
Thermodynamics	(Eng'g 121)	9:00 M.W.F.	3	
Coal mining	(Eng'g 81)	8:00 M. 10:00 Tu. Th.	3	
Elec. & mag.	(Physics 10)	11:00 Tu.Th., 2:00 W.	3	
General geology	(Geology 2)	11:00 M.W.F.	3	
Mechanical Lab.	(Eng'g 130)	8:00 S.	2	
Engineering society	(Eng'g 162)	7:30 p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00 T. Th. F.	3	
Hydraulics	(Eng'g 73)	8:00 M.W.	2	
Coal mining	(Eng'g 82)	9:00 M.Tu.Th.F.	4	
Economic geology	(Geo. 4)	11:00 M.W.F.	3	
Mine design and drawing	(Eng'g 86)	8:00 Tu. and 2:00 Tu.Th.	3	
Mechanical lab.	(Eng'g 131)	8:00 S.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.	1	18

Fourth Year—First Semester

Power plant design	(Eng'g 123)	8:00 M.W.F.	3	
Elements of electrical Eng.	(Eng'g 53)	9:00 M.W.F.	3	
Mine des'n & dwg.	(Eng'g 87)	9:00 Tu., 2:00 Tu.Th.	3	
Mine explosions and gases	(Eng'g 83)	11:00 M.Th.F.	3	
Structural eng'g.	(Eng'g 144)	11:00 Tu.W.	2	
Engineering lab.	(Eng'g 132)	8:00 Th.	2	
Electrical lab.	(Eng'g 62)	2:00 F.	2	
Engineering society	(Eng'g 163)	7:30 p.m. F.		18

Fourth Year—Second Semester

Metallurgy	(Eng'g 85)	8:00 M.W.F.	3	
Elect. engineering	(Eng'g 54)	10:00 M.F.	2	
Concrete const.	(Eng'g 147)	9:00 Tu.Th., 2:00 W.F.	4	
Mine management	(Eng'g 84)	10:00 Tu.Th.	2	
or M'f'g and prop. of coke	(Eng'g 91)	10:00 M. F.	2	
Mineralogy	Geology)	Hours to be arranged	3	
Thesis	(Eng'g 99)	Hours to be arranged	3	
Engineering society	(Eng'g 163)	7:30 p.m. F.	1	18

OPTIONAL COURSE IN SANITARY ENGINEERING.

Students in civil engineering who desire to specialize in sanitary engineering are permitted to make the following substitutions:

Chemistry 6, Quantitative analysis (4 hrs.) for Mechanism 29 (2) hrs.) and Mechanism Drawing 30 (2 hrs.) in the second semester, second year.

Bacteriology 1, General Bacteriology, (3 hrs.) for Economic Geology 4 (3 hrs.) second semester, third year.

Chemistry 8, Organic Quantitative Analysis (5 hrs.) and thesis (4 hours) for Railroad Economy 107 (3 hrs.), Advanced Structures 143 (3 hrs.), and Thesis (3 hrs.).

An additional course in bacteriology (2 hrs.) is arranged for the first semester, fourth year, to take the place of Tunneling 88 (2 hrs.)

CURRICULA FOR GRADUATE STUDENTS IN ENGINEERING

These lead to the professional degrees of Civil Engineer, Mechanical Engineer, Electrical Engineer, and Engineer of Mines, respectively. They consist of advanced engineering courses aggregating twenty-four semester hours and a thesis, and require one year of resident study and work at the University.

A candidate for a professional degree is required to have completed the prescribed four-year curriculum of undergraduate study in that department of this college in which he proposes to take a degree, or to have completed such a curriculum or its equivalent at some other institution of recognized standing, conferring the same or an equivalent baccalaureate degree. In the latter case, the diploma and other certificates of proficiency should be presented.

There is no fixed curriculum of subjects for any of these degrees, but the curriculum of study or investigation is arranged to suit the needs of each candidate, subject to the rules governing candidates for the degree of Master of Arts as stated in the announcement of the College of Arts and Sciences. Each candidate for a degree must select his major subject in the department in which his degree is to be taken and submit a thesis showing marked attainment in some phase of this subject.

SPECIAL ENGINEERING CURRICULA

1. Elective Groups for Students in other Colleges. Candidates for degrees other than engineering degrees, and special students in any department of the University, are permitted to elect subjects in the College of Engineering, provided, in each case, they have had the subjects specified as prerequisites. Students who wish to take a general classical or scientific course of study before taking the engineering curriculum are advised to carry their mathematics as far as called for by the engineering curriculum, and to take some of

their elective work in the College of Engineering. The engineering instructors will advise them what is best to elect.

Credits are given in the College of Arts and Sciences for the following engineering courses:

Subject	Credit hours
Mechanical drawing 20-25, 30	8
Descriptive geometry 26	3
Mechanism 27 or 29	2
Theory of alternating currents 55	2
Alternating current machinery 56	3
Electrical laboratory 60, 61	4
Statics 70	3
Mechanical materials 71	4
Dynamics 72	3
Hydraulics 73	2
Land surveying 100 and 101	3
Thermodynamics 121	3
Heating and ventilating 127	3

In addition to the above the student may elect with the consent of his class officer, when his major subject is physics or education,

Engineering 1-18 (Mechanic arts)	10
Mechanical drawing 20-25, 28 or 30	3

2. Combined B.Sc. and Engineering Curriculum. The following course of study is sugested for students whose major subject is physics and who expect to take an engineering degree after receiving the degree of B.Sc.

Language group:—

Rhetoric and composition	10
French and German	30

Philosophy group:—

History, economics, education	20

Science group:—

Algebra, trigonometry	7
Analytical geometry, calculus	9
Physics 6, 7, 10	13
Mechanics 70, 71, 72, 73	12
Thermodynamics 121	3
Mechanism 29	2
Military science	4

Electives from group above:—

Mechanical drawing 20-25, 28 or 30	6
Descriptive geometry 26	3
Land surveying 100	3
Shop work and other electives to suit degree to be taken	6
Total	128

Students who wish to secure the degree in civil engineering should include Geology 2 and Geology 4 in their list of electives. Those expecting to take mining engineering should elect Geology 2, Geology 4, and Mineralogy.

By following the above curriculum students may receive both the B.Sc. and the engineering degree in from five and a half to six years.

3. Partial Curricula. Deserving young men who have not the time or are otherwise unable to take a full curriculum, will be allowed to take special or partial curricula, consisting of such studies as they are prepared to take, provided that such curricula shall have been approved by their class officers. For further information see statement of requirements for admission as special students.

4. Manual Training Courses. The first group consists of courses 1, and 7 in mechanical engineering. The second group consists of mechanical drawing, courses 20, 21, 22; and shop practice in wood and metal working, courses 1, 3, 5, 7, 9, 10, 12 and 14. These courses aim to present the simple elements of some of the constructive arts which admit of being developed into a logical series of exercises. Their merit is chiefly educational, rather than as possessing any intrinsic value in relation to the several branches of handicraft work from which they are taken. The primary object is the training of the eye to see the form of objects, and of the hand to produce such forms in the materials most commonly used in constructive work. There is sufficient instruction in handicraft work and practice to form a proper foundation for the more advanced work with machine tools in mechanical construction and these courses are therefore required of all students taking the full course in mechanical engineering.

5. Special Courses for Mechanics, etc. Students who wish to become more proficient in the use of tools or who are preparing themselves for positions as foreman in industrial establishments, may take additional work in the shop in which they wish to

specialize. Instruction will be given in the maintenance and repair of machinery, and opportunity will be afforded for the construction of new machines and apparatus for the University, as well as the working up in the shops of original designs which have been approved by the head of the department. All students in mechanical engineering are recommended to take advantage of this provision and devote as much time as possible to shops and drawing-room practice.

COURSES OF INSTRUCTION

In the following announcements, the name of the course is followed by its credit value in semester hours. A credit of one semester hour is given for a lecture or recitation course meeting one hour per week for one semester and requiring two hours of preparation for each lecture or recitation.

Credit for practical work in the shops, drawing rooms, laboratories, and field, is given on the basis of the actual time required, including the preparation of reports and the writing of notes, three hours actual work counting as one recitation hour.

DRAWING, MACHINE DESIGN AND CONSTRUCTION

1. Woodworking. (1½ Hrs.) For freshmen. Required of all candidates for engineering degrees. Includes instruction in carpentry; exercises with the fundamental edge tools in soft and hard woods and in making typical framed work; wood turning; exercises comprising the fundamental geometrical forms in soft and hard woods; fitting of forms of reversed curves; face plate work; boring, finishing, and polishing.

First half of first semester; sections 1 and 3, M., W., F., 2:00; sections 2 and 4, Tu., Th., 2:00, and S., 8:00. Sections 1 and 2 for students in civil and mining engineering, sections 3 and 4 for students in electrical and mechanical engineering. Mr. SEAMAN, 21 M. H.

2. Woodworking. (2 Hrs.) Optional for candidates for degrees in the College of Agriculture. Includes instruction in carpentry; exercises with fundamental edge tools in soft and hard woods, with especial attention to the making of typical framed structures.

First semester; M. Th., 8:00; Mr. SEAMAN, 21 M. H.

3. Woodworking. Advanced work for special students, who are

allowed to specialize along the lines of their choice. The amount of credit to be given depends upon the time spent in the shop and the progress of the student. Prerequisite: Woodworking 1 or 2.

Second semester; hours to be arranged; Mr. SEAMAN, 21 M. H.

4. Pattern Making. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. An application of the instruction of woodworking 1 to the production of patterns for castings for machine construction; types of patterns and usual allowances for draft, shrinkage and finish; exercises in making patterns of machine elements and other work to be later executed in machine shop. Prerequisite: Woodworking 1.

Second semester: section 3, M., F., 2:00; section 4, Tu., 2:00 and S., 8:00. Mr. SEAMAN, 21 M. H.

5. Foundry. (1½ Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Selection, preparation and use of molding, facing and parting sands; use of typical molder's tools and appliances; cupola practice; making of castings from exercise patterns and from those for the machine shop; solid and parted patterns, cored work, use of sweeps, etc.; use of brass furnace and brass casting.

Last half of first semester; section 3, M., W., F., 2:00; section 4, Tu., Th., 2:00 and S., 8:00. Mr. WEST and Mr. SEAMAN, 8 M. H.

6. Foundry. Advanced work for special students, continuation of Foundry 5.

Hours to be arranged; Mr. WEST and Mr. SEAMAN, 8 M. H.

7. Forging. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering and agriculture. Use and care of forge, fire and tools; exercises in drawing out and sizing, forming, twisting, punching, upsetting, welding and fitting iron; ornamental iron work; steel forging, tempering and annealing springs; making of typical lathe, shaper and planer tools for machine shop use; case hardening, use of power hammer; determination of quality of iron and steel.

First semester: section 3, W., F., 2:00, last half of semester; section 4, M., 2:00 and S., 8:00, first half of semester; section 5, W., F., 2:00, first half of semester, for agricultural students. Mr. WEST, 7 M. H.

8. Forging. Advanced work for special students, continuation of Forging 7.

Hours to be arranged; Mr. WEST, 7 M. H.

9. Elements of Metal Work. (1½ Hrs.) Required of all candidates for degrees in civil engineering and engineering of mines. Elements of forging; use and care of forge, fire and tools; exercises in drawing out and sizing, forming, twisting, punching, upsetting, welding, and fitting iron; steel forging and hardening; use of power hammer; bench work; chipping and filing; drilling, riveting, use of pneumatic chisel and riveter.

Last half of first semester: sections 1 and 2, Tu., Th., 2:00 and S., 8:00; Mr. CATHER and Mr. WEST, 11 and 7 M. H.

10. Pipe Fitting. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering. Use of hand dies and pipe threading machines; drilling and tapping; making up joints and erection of lines of piping; riveting, caulking and tube expanding.

Second semester: section 3, M., F., 2:00, last half of semester; section 4, Tu., Th., 2:00, first half of semester; Mr. WEST, 7 M. H.

12. Bench and Vise Work. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering. Chipping, filing, scraping and polishing; squaring, formation of straight edges and surface plates; laying out work; sawing, drilling, tapping. Lectures and shop work.

First semester: section 3, W., F., 2:00, first half of semester; section 4, M., F., 2:00, last half of semester; Mr. CATHER, 11 M. H.

13. Machine Work; Sheet Metal Work. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering. First four weeks, continuation of Bench and Vise Work 12, leading to elementary exercises on engine lathe. Last five weeks, sheet metal work; laying out, cutting and forming of sheet metal; use of coppers, soldering, tinning and brazing. Prerequisite: Bench and Vise Work 12.

Second semester: section 3, M., F., 2:00, first half of semester; section 4, Tu., Th., 2:00, last half of semester; Mr. WEST, 7 M. H.

14. Machine Tool Work. (4 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Adjustment and operation of machine tools, measuring devices, angles of cutting tools, feeds and speeds; exercise involving fundamental operations with the lathe, planer, drill press, grinder and milling machine. Lectures and shop work. Prerequisite: Forging 7, and Chipping and Filing 12.

This work is regularly given in the supplementary term, lasting about one month immediately after the close of the second collegiate year. Students may take the equivalent of this in actual

experience by procuring summer employment in machine shops. Credit will be given in each case on the basis of the amount and character of the experience obtained.

Supplementary term; 8:00 to 12:00, 1:00 to 5:00; Mr. CATHER, 11 M. H.

15. Machine Construction. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Continuation of Machine Tool Work 14, with special attention to assembling, fitting and erecting of machines. Lectures and shop work.

First semester; section 3, Tu., F., 2:00; section 4, M., 2:00 and S., 8:00; Mr. CATHER, 11 M. H.

16. Shop Methods. (2 Hrs.) Required of all candidates for degrees in mechanical engineering. Continuation of Machine Construction 15. Study of machine and other shop methods for wholesale production, use of jigs and templates and of special machines and processes; work shop appliances in general; costs of machine work; arrangement, installation and upkeep of machinery; elements of practical mill-wrighting. Shop and laboratory work; lectures, inspection trips, reading, etc.

Second semester; shop work, W., 2:00 and S., 8:00, first half of semester; lectures, M., F., 11:00, last half of semester; Professor CHURCH and Mr. CATHER, 26 and 11 M. H.

17. Machine Construction. Advanced work for special students, continuation of Machine Construction 15 and Shop Methods 16.

Hours to be arranged; Mr. CATHER, 11 M. H.

18. Electrical Construction. For special students and others wishing practical experience along electrical lines. Mechanical repairs to dynamos and motors, setting and adjusting of brushes; construction of switches, switchboards and rheostats, winding coils; wiring for electric light, power and telephone service.

Hours to be arranged; Professor DICKINSON and Mr. WEST, 4 M. H.

20. Mechanical Drawing. (2 Hrs.) For freshmen. Required of all candidates for engineering degrees. Care and use of drawing instruments, line exercises, geometric constructions, plain lettering including proficiency in at least one style, orthographic projection.

First semester; section 1, Th., 2:00 and S., 8:00, first half of semester; W. F., 2:00 last half of semester; section 2, W., F., 2:00; section 3, Tu., 2:00 and S., 8:00; section 4, M., F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

21. Mechanical Drawing. (2 Hrs.) Primarily for students in home economics. Use of drawing instruments, practice in reading of drawings, designing and drawing of furniture and of room and house plans.

First semester; Tu., Th., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

22. Mechanical Drawing. (2 Hrs.) For freshmen. Required of all candidates for engineering degrees. Continuation of mechanical drawing 20; isometric projection, tracing and blue printing, working drawings from blue prints, sketches and models.

Second semester; sections 1, 2, and 3, Tu., Th., 2:00; section 4, M., F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

23. Mechanical Drawing. (2 Hrs.) Required of all candidates for degrees in agriculture. Use of drawing instruments, practice in reading of drawings, building plans, designing and drawing of framed structures and their details.

Second semester; W., F., 2:00, Professor CHURCH and Mr. GROW, 25 M. H.

24. Mechanical Drawing. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Continuation of Mechanical drawing 22; working drawings, engineering sketching, assembly and arrangement drawing, empirical design.

First semester; section 3, M., 2:00 and S., 8:00; section 4, W., F., 2:00, first half of semester; W., 2:00 and S., 8:00, last half of semester; Professor CHURCH and Mr. GROW, 25 M. H.

25. Mechanical Drawing. (2 Hrs.) Required of all candidates for degrees in civil engineering and engineering of mines. Contiauation of Mechanical Drawing 22; drawing room conventions for representation of materials, details in topography, wooden framing, structural steel shapes and framing, etc., lettering of titles, map tracing.

First semester; W., F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

26. Descriptive Geometry. (3 Hrs.) Required of all candidates for engineering degrees. Orthographic projections in the four quadrants; problems of the point; line and plane; tangencies; development of single curved surfaces. Prerequisite: Mechanical Drawing, 20.

First semester; Tu., Th., F., 10:00; Professor MORRIS, 24 M. H.

27. Mechanism and Machinery. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To

accompany Mechanism Drawing 28. Analysis and classification of mechanisms; diagrams of relative velocities of machine parts; principles of transmission and change of motions by linkages, rolling contract, toothed gearing, couplings, belts, cams, parallel and straight line motions; analysis and classification of machines with special attention to workshop appliances, machine tools and machinery of transmission. Lectures and recitations. Prerequisite: Mechanical drawing 22.

Second semester; W., F., 11:00; Professor GRUMBEIN and Mr. GROW, 26 M. H.

28. Mechanism Drawing. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Mechanism and Machinery 27. Drawing and diagrams of mechanical movements, velocity diagrams, graphical solution of problems, design and drawing of gear teeth. Prerequisite: Mechanical drawing 22.

Second semester; W., 2:00 and S., 8:00; Professor CHURCH and Mr. GROW, 25 M. H.

29. Mechanism and Machinery. (2 Hrs.) Required of all candidates for degrees in civil engineering. To accompany Mechanism Drawing 30. Brief course in analysis and classification of mechanisms; motions, velocities, diagrams of motion and velocity, cams, involute and cycloidal gearing, belting, intermittent gearing, clutches, etc. This short theoretical course is followed by a study and analysis of mechanisms and machines used in the various branches of civil engineering; hoists, derricks, lifts, dredges, shovels and other excavating machinery, crushers, conveyors, etc.

Second semester; Tu., Th., 11:00; Professor GRUMBEIN and Mr. GROW, M. H.

30. Mechanism Drawing. (2 Hrs.) Required of all candidates for degrees in civil engineering. To accompany Mechanism and Machinery 29. Drawings and diagrams of mechanical movements, velocity diagrams, gear teeth; analysis by sketches and written descriptions of various pieces of contractor's machinery in the shops and laboratories, and in Morgantown or vicinity. Prerequisite: Mechanical Drawing 22.

Second semester; Tu., Th., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

31. Valve and Valve Gears. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Machine Drawing 32 or 33. Brief study of simple steam engine; use and comparison of valve diagrams, study of valves and

gears in common use; analysis and design. Lectures and recitations. Prerequisites: Mechanism and Machinery 29 and 30.

First semester; M. W., 11:00; Professor CHURCH 26 M. H.

32. Machine Drawing. (2 Hrs.) Required of all candidates for degrees in mechanical engineering. To accompany Valve and Valve Gears 31. Valve diagram problems; designing and drawing of valves and gears; steam engine drawing.

First semester; M. Th., Professor CHURCH and Mr. GROW, 25 M. H.

33. Machine Drawing. (2 Hrs.) Required of all candidates for degrees in electrical engineering. Use of valve diagram and solution of problems; assembly drawing, steam engines, boilers, dynamo electric machinery.

First semester; M. Th., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

35. Machine Design. (3 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Machine Drawing 36. Elements of machine design, conventional and rational proportioning of bearings, fastenings, rotating parts, connecting links and machine supports; mechanics of machinery; influence of material and treatment on design. Prerequisite: Mechanics 71 and Mechanism and Machinery 29.

Second semester; M. F., 10:00 and W., 11:00; Professor CHURCH, 26 M. H.

36. Machine Drawing. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Machine Design 35. Designing and drawing of machine elements and finally of complete machine.

Second semester; M. F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

37. Advanced Machine Design. (3 Hrs.) Optional for fourth year senior students in mechanical engineering. Continuation of Machine Design 35. To accompany Designing and Drawing 38. Graphical solutions of problems in machine forces; theory of elasticity; dynamics of machines, governors, reciprocating parts, fly-wheels, running balance, whirling of shafts, etc. Lectures and recitations.

First semester; M. F., 11:00 and Tu. 9:00; Professor CHURCH, 26 M. H.

38. Designing and Drawing. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Advanced

Machine Design 37. Designing practice of more advanced nature than that in Machine Design 35, and involving principles studied in the class room work of Course 37.

First semester; Tu. W. Th., 2:00; Professor CHURCH, 25 M. H.

39. Steam Engine Design. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Designing and Drawing 40. Study of modern steam engine from the point of view of the designer and constructor; detailed study of form of parts and of the forces and stresses involved; comparison of rational and empirical formulae. Dynamics of Machines; governors, reciprocating parts and flywheels. Lectures and recitations. Prerequisite: Machine Design 35.

First semester; M. Tu. F., 10:00; Professor CHURCH, 26 M. H.

40. Designing and Drawing. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Steam Engine Design 39. Use of empirical and rational formulae; complete design and drawing of a steam engine of simple type so far as time will allow.

First semester; Tu. W. Th., 2:00; Professor CHURCH, 25 M. H.

41. Designing and Drawing. (3 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Continuation in the drawing room of Power Plant Design 123; making of the working drawings showing the location of boilers, engines, auxiliaries, piping, coal and ash handling machinery, etc.

Second semester; M. W., 2:00 and S., 8:00; Professor CHURCH and Mr. GROW, 25 M. H.

42. Machinery and Mill Work. (3 Hrs.) Optional for fourth year students in mechanical engineering. Study of sites of building; foundations, walls and roof; designing and construction of mill and manufacturing buildings and managements of equipment; chimneys, lighting, heating, ventilating, cranes and other appliances for handling material; power generation; transmission and utilization in mills and factories. Prerequisites: Shop Methods 16 and Machine Design 35. To be given in alternate years with Steam Turbines 125.

Second semester; M. W. F., 9:00; Professor CHURCH, 26 M. H.

45. Gas Engine Design. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Gas Engineering 126. Calculations and drawings for gas engine, complete so far as time will allow. Prerequisite: Steam Engine Design 39.

Second semester; hours to be arranged; Professor CHURCH, 26 M. H.

46. Industrial Management. (1 Hr.) Required of all students in electrical and mechanical Engineering. Organization of industrial establishments, management, systems of payment, cost keeping, distribution of overhead expenses, determination of cost of production, etc.

Second semester; F., 8:00; Professor CHURCH, 26 M. H.

49. Thesis. (3 Hrs.) Optional for fourth years students in mechanical engineering. The working out of some special problems in design or construction or both. See general thesis requirements.

Hours to be arranged; Professor CHURCH, 26 M. H.

ELECTRICAL ENGINEERING

51. Applied Electricity. (3 Hrs.) Primarily for the third year students in civil engineering. Required for the degree of B.S.C.E. Lectures and recitations accompanying laboratory practice. A brief course covering the principles and the most important industrial applications of electricity. Prerequisite: Physics 7.

First semester; Tu. Th., 11:00; Professor DICKINSON, 14 M. H.; laboratory, Th., 9:00; Professor DICKINSON, and Assistants, 4 M. H.

52. Direct Current Machinery. (4 Hrs.) Primarily for third year students. Required for the degree of B.S.C.E. The mechanical applications of the theories of the electric and magnetic circuits. A study of the theory, construction, and operation of direct current generators and motors and allied apparatus. Prerequisite: Physics 10.

Second semester; Tu. F., 11:00; Professor DICKINSON, 14 M. H.; laboratory, Th., 9:00; Professor DICKINSON and Assistants, 4 M. H.

53. Elements of Electrical Engineering. (3 Hrs.) A course for fourth year students in mechanical and mining engineering. Required for the B.S.M.E. and B.S.E.M. degrees. A general study of the generation, transmission, and the utilization of electrical energy. Prerequisites: Physics 10 and Calculus.

First semester; M. W. F., 9:00; Professor DICKINSON, 14 M. H.

54. Elements of Electrical Engineering. (2 Hrs.) Continuation of Course 53. The industrial applications of electricity, with a consideration of the economic employment of systems of distribution and types of machines.

Second semester; M. F., 10:00; Professor DICKINSON, 14 M. H.

55. Theory of Alternating Currents. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. A mathematical and graphical treatment of periodic currents and

accompanying phenomena, with special reference to the engineering applications of the principles. Accompanied by Electrical Engineering Laboratory 60. Prerequisites: Physics 10 and Engineering 51.

First semester; M. F., 10:00, and W., 9:00; Professor DICKINSON and Assistants, 14 M. H.

56. Alternating Current Machinery. (3 Hrs.) Continuation of Engineering 55. Principles of design, construction and operation of single and polyphase machinery and auxiliary apparatus. Accompanied by Electrical Engineering Laboratory 61.

Second semester; M. W. F., 9:00; Professor DICKINSON, 14 M. H.

57. Electric Traction and Transmission. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. A study of the equipment of electric railway installations, with special treatment of transmission systems for traction and general distribution. Prerequisite: Engineering 51.

First semester; M. W. F., 11:00; Professor DICKINSON, 14 M. H.

58. Electrical Lighting and Signalling. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. The first part of the course is devoted to a study of the principles of illumination and interior wiring. Later, the fundamental principles of electric signalling are treated, with their applications to modern telegraphic and telephonic systems. Prerequisite: Engineering 55.

Second semester; M. W. F., 11:00; Professor DICKINSON, 14 M. H.

59 Electrical Design and Drawing. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. Designing and drawing dynamos, motors, transformers, switchboards, etc. This course requires nine hours a week in the designing room. Prerequisite: Engineering 51 and 35.

First semester; Tu. W. Th., 2:00; Professor CHURCH and Professor DICKINSON, 25 M. H.

60, 61. Electrical Engineering Laboratory. (2 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. Experimental study of the characteristics of alternating current machinery, investigations of transmission line constants and losses, tests of series lighting systems location of line faults, traction and power plant tests, etc. Prerequisite: Engineering 51.

First semester; Tu., 8:00; Professor DICKINSON, and Assistants, 4 M. H.

Second semester; Tu., 8:00; Professor DICKINSON, and Assistants, 4 M. H.

62. Electrical Engineering Laboratory. (2 Hrs.) Primarily for fourth year students in mechanical and mining engineering. Required for the degrees of B.S.M.E. and B.S.E.M. Practical measurements in electrical machinery; study of switchboards; calibration of instruments; determination of efficiencies and characteristics of dynamos motors, transformers and other electrical apparatus. To accompany Engineering 53. Prerequisite: Physics 10.

First semester; F., 2:00; Professor DICKINSON and Assistants, 4 M. H.

63. Electrical Engineering Laboratory. (1 Hr.) Continuation of course 62. To accompany Engineering 54.

Second semester; Tu., 2:00; Professor DICKINSON and Assistants.

64. Electrical Research. For advanced and graduate students. Laboratory investigations in special lines of electrical studies.

Hours and credits to be arranged; Professor DICKINSON, 14 M. H.

65. Electrical Engineering. Seminar work for advanced and graduate students. Special topics will be selected for study and discussion.

Hours and credits to be arranged; Professor DICKINSON, 14 M. H.

69. Thesis. (3 Hrs.) Required of candidates for the degree of B.S.E.E. Special investigation or original research on some topic relating to electrical engineering.

First and second semesters; hours to be arranged; Professor DICKINSON, 14 M. H.

MECHANICS AND APPLIED MATHEMATICS

70. Statics. (3 Hrs.) Required of all second year engineering students. A study of the composition and resolution of forces, polygon of forces, resultants of parallel forces by analytical and graphical methods, moments, couples, equilibrium of concurrent and non-concurrent forces, center of gravity and moment of inertia by analytical and graphical methods, stresses in frames and jointed structures. Prerequisite: Integral calculus.

Second semester; Tu. Th. F., 10:00; Professor EMORY, 20 M. H.

71. Mechanics of Materials. (4 Hrs.) Required of all third year engineering students. Continuation of course 70. The strength of materials, resistance and elasticity of pipes, cylinders and riveted joints, cantilever and simple beams; tension and compression, resistance,

shear, torsion; strength of timbers, iron, steel, stone, concrete; elastic limits, factor of safety; design of simple structure. Prerequisite: Statics 70.

First semester; Tu. W. Th. F., 8:00; Professor EMORY, 20 M. H.

72. Kinetics. (3 Hrs.) Required of all third year engineering students. Continuation of Statics 70. Laws of motion in resisting medium, central forces, centrifugal force, pendulum and governor, impulse, work, energy, power modulus of machines, revolving masses, work of variable forces, duty of engines, impressed forces, motions of rigid bodies, flywheels, conservation of energy. Prerequisite: Statics 70.

Second semester; Tu. Th. F., 8:00; Professor EMORY, 20 M. H.

76. Mechanics. (5 Hrs.) Includes Statics 70, and first half of Mechanics of Materials 71.

First semester; 11:00; Professor EMORY, 20 M. H.

77. Mechanics. (5 Hrs.) Continuation of course 76. Includes last half of Mechanics of Materials 71 and Kinetics 72.

Second semester; 11:00; Professor EMORY, 20 M. H.

73. Hydraulics. (2 Hrs.) Required of all engineering students. Theoretical pressure and energy of water; flow of water through orifices and tubes and over weirs; flow in conduits, pipes, canals, and rivers; current meters, water motors, turbines. Prerequisite: Kinetics 72.

Second semester; M. W., 8:00; Professor DAVIS, 30 M. H.

75. Least Squares and Adjustment of Observations. (1 Hr.) Elective for fourth year engineering students. Especially designed for civil and electrical engineering students. Errors of observation; principles of probability, weights of observations, principle of least squares, probable errors of observation, errors in the mean, corrections of observations, normal equations, empirical formulæ. Prerequisite: Calculus.

First semester; hours to be arranged; Professor EMORY, 20 M. H.

MINING ENGINEERING

80. Mine Surveying. (4 Hrs.) Primarily for Sophomores. Required of all candidates for degrees in mining engineering. With this subject is included topographic surveying, location of outcrop, shaft plumbing, and the various systems of mine surveying and note keeping. The accuracy of the field work is tested by plotting the notes.

Second semester; M. W. F., 11:00; S., 8:00; Professor ZERN, 15 M. H.

81. Coal Mining. (3 Hrs.) Primarily for juniors. Required of all candidates for degrees in mining engineering. A study of the occurrence and composition of coals; prospecting, breaking ground, transmission of power to underground workings, coal cutting, explosives, blasting, shaft sinking, timbering and the various methods of working coal seams at home and abroad.

First semester; M. 8:00; Tu. Th., 10:00; Professor ZERN, 15 M. H.

82. Coal Mining. (4 Hrs.) Primarily for juniors. Required of all candidates for degrees in mining enginering. Treats of the various kinds of haulages in mines, the care of live stock, hoisting, pumping, ventilation, lighting, works at surface, preparation of coal for market, briquetting and coal washing.

Second semester; M. T. W. Th., 9:00; Professor ZERN, 15 M. H.

83. Mine Explosions and Gases. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. A study of mine air and mine gases; their generation; characteristics and behavior; the underlying causes of mine explosions; coal dust theory; measures for the prevention of explosions; rescue work after explosions, etc.

First semester; M. Th. F., 11:00; Professor ZERN, 15 M. H.

84. Mine Management. (2 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. With this subject is included a study of mine economics, organization and care of labor, mine accounting and cost keeping, valuation of properties, welfare movements, etc.

Second semester; Tu. Th., 10:00; Professor ZERN, 15 M. H.

85. Metallurgy. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. A course designed to give the student a working knowledge of the basic principles involved in the metallurgy of iron, steel, gold, silver, copper, zinc, lead and fuels.

Second semester; M. W. F., 8:00; Professor ZERN, 15 M. H.

86. Mine Design and Drawing. (3 Hrs.) Primarily for juniors. Required of all candidates for degrees in mining engineering. The application of the principles of construction to mine appurtenances such as powder magazines, supply houses, lamp houses, motor pits, tipples, stables, etc.

Second semester; Tu. 8:00; Tu. Th., 2:00; Professor ZERN, 15 M. H.

87. Mine Design and Drawing. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. Most of the work in this course is given to the projection of mine workings,

the objective being successful ventilation and safety and economy in extraction, design of shaft bottoms and inside stables, and the solution of mine problems such as confront the engineer in practical work.

First semester; Tu. 9:00, Tu. Th., 2:00; Professor ZERN, 15 M. H.

88. Shafting and Tunneling. (2 Hrs.) Primarily for seniors. Required of all candidates for degrees in civil engineering. Treats of the various methods used in shafting and tunneling, such as the freezing process, forepoling, pneumatic and open caisson, shields, etc., and their especial adaptability to the difficulties encountered. Rock drills, drilling and blasting practice. Practice in foreign countries, such as Germany, England, Belgium and France.

First semester; M. F., 10:00; Professor ZERN, 15 M. H.

90. Summer Field Practice. (4 Hrs.) Primarily for juniors. Required of all candidates for the degree in mining engineering. This period is devoted to applying the principles of surveying previously acquired. Through the courtesy of the Elkins Coal and Coke Company their mines, located but a few miles away, have been made available for the carrying on of much of this work.

Four weeks of six days per week from the middle of June to the middle of July, between the sophomore and junior years. Professor ZERN, 15 M. H.

91. The Manufacture and Properties of Coke. (2 Hrs.) Primarily for seniors. May be elected in place of Electrical Engineering 54. This course treats of the various classes of coke ovens as the beehive, rectangular, flue or bi-product. Methods of manufacture, physical properties, effects of impurities as ash, sulphur, and phosphorus. Design of ovens, etc.

Second semester; M. F., 10:00; Professor ZERN, 15 M. H.

95. Mining Laboratory. (2 Hrs.) Required of all candidates for the degree of B.S.E.M. Includes tests of steam engines, boilers, air compressors, mine fans, and mine car wheels; mine air analysis, methane, carbon monoxide, and, carbon dioxide in ventilating currents; explosibility of mehtane and coal dust in mine air; experiments in coal washing and coal preparation. Prerequisite: Mechanical laboratory 131.

First semester; Th., 8:00; Professors ZERN and GRUMBEIN, 10 M. H.

99. Thesis. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. The student is encouraged to choose such subject as will involve careful observation, collateral reading and the collection of data.

Second semester; hours to be arranged; Professor ZERN, 15 M. H.

RAILWAY AND HIGHWAY ENGINEERING AND SURVEYING

100. Land Surveying. (3 Hrs.) Required of all candidates for degrees in civil and mining engineering. Theory and practice of land surveying; magnetic variations; calculating the content; retracing old lines; division of lands; establishment of meridians; care and use of instruments; mapping and surveying. Lectures, recitations, field practice.

Second semester; M. Th. F., 10:00; Professor Morris, 24 M. H.

101. Surveying. (1 Hr.) Primarily for first year students. Required for degrees in mechanical and electrical engineering. Theory and use of the compass, transit and level, the laying out and measurement of areas and leveling. Prerequisite: Plane trigonometry.

Second semester; Tu. 10:00; Professor Morris, 24 M. H.

102. Advanced Surveying. (2 Hrs.) Primarily for second year students. Required of candidates for degrees in civil and mining engineering. Continuation of Surveying 100. Adjustment of instruments, stadia surveys, leveling, etc.

First semester; Tu. Th., 11:00; Professor Morris, 24 M. H.

103. Topographical Surveying. (2 Hrs.) Primarily for second year students. Required of candidates for degrees in civil engineering. Theory and practice of topography, hydrographic and barometric surveying. Lectures, recitations, field practice and map drawing. Prerequisite: Land surveying 100.

Second semester; M. W., 11:00; Professor Morris, 24 M. H.

104. Railway Location. (3 Hrs.) Primarily for third year students. Required of all candidates for degrees in civil engineering. Theory and practice of railroad surveying. Lectures, recitations, field work, and drawing. Searles' Field Engineering. Prerequisite: Land surveying 100.

First semester; M. W. F., 9:00; Professor Morris, 24 M. H.

105. Railway Construction and Maintenance. (3 Hrs.) Primarily for third year students. Required of all candidates for degrees in civil engineering. Tunnels, trestles, track-work, earth-work, signalling, grading, masonry, drawing. Prerequisite: Railway location 104.

Second semester; M. W. F., 9:00; Professor Morris, 24 M. H.

106. Roads and Pavements. (3 Hrs.) Primarily for fourth year students in civil engineering. Required of all candidates for degrees in civil engineering. Location, construction and maintenance; study and comparison of various types of roads; road making materials; lectures, recitations and field work.

First semester; M. W. F., 11:00; Professor Morris, 24 M. H.

107. Railroad Economy. (3 Hrs.) Optional for fourth year students in civil engineering. General theory of railroad location; effects of grades, curvature, and distance on operating expenses and revenue; railroad finance and management.

Second semester; Tu. Th. F., 11:00; Professor MORRIS, 24 M. H.

108. Highway Economics. (2 Hrs.) Optional for fourth year students in civil engineering. Continuation of Roads and Pavements 106, with special reference to permanent improvements and maintenance of existing roads. Re-surveys, relocation, drainage, etc.

Second semester; Tu. Th., 8:00; Professor MORRIS, 24 M. H.

110. Summer Field Practice. (4 Hrs.) Primarily for third year students in civil engineering. Required of all candidates for degrees in civil engineering. The survey of a railway line, including reconnaissance, preliminary survey, location, amping, etc., or other field problems of like nature. Students are encouraged to take the equivalent of this in actual experience by procuring summer employment on approved surveying corps.

Four weeks of six days per week from middle of June to the middle of July; Professor MORRIS.

113. Thesis. (3 Hrs.) Optional for fourth year students in civil engineering. See general description of engineering courses for thesis requirements.

Second semester; hours to be arranged; Professor MORRIS, 24 M. H.

STEAM, GAS, AND EXPERIMENTAL ENGINEERING

120. Steam and Gas Machinery. (3 Hrs.) Required of third year students in civil engineering. Elementary thermodynamics, steam properties, calorimeters, fuels, boilers, engines, pumps, compressors, gas engines, turbines. Arranged for the selective design of parts of a plant. Prerequisite: Physics 7.

First semester; M. Tu. F., 10:00; Professor EMORY, 20 M. H.

121. Thermodynamics of Engineering. (3 Hrs.) Primarily for third year men. Required of all candidates for the degrees in mechanical, electrical and mining engineering. Mechanical theory of heat, thermodynamics of gases and vapors with special application to steam and other heat engines, compressed air and refrigeration. Prerequisite: Physics 6, 7, and Integral Calculus.

First semester; M. W. F., 9:00; Dean JONES, 16 M. H.

122. Heat Engines. (3 Hrs.) Required of candidates for degrees in mechanical, electrical and mining engineering. Continuation of

Thermodynamics 121. Expansive working of steam and gas, principles of design, construction and operation of steam engines, air compressors, gas engines, and refrigerating machines.

Second semester; M. W. F., 9:00; Dean JONES, 16 M. H.

123. Power Plant Design. (3 Hrs.) Primarily for fourth year and graduate students. Required of candidates for degrees in mechanical, mining and electrical engineering. Embodies the details of the earlier courses of instruction in prime movers and motive-power machinery in respect to the design of steam and electric power and hydraulic plants for power transmission and manufacturing purposes; location of the plant; selection, arrangement, subdivision into units and installation; economics, organization and management of power and manufacturing plants; engineering specifications. Prerequisite: Thermodynamics 121.

First semester; M. W. F., 8:00; Dean JONES, 16 M. H.

124. Steam Boilers. (2 Hrs.) Elective for seniors. Heating value of fuels, combustion, economical production of steam; application of theory and practice in the design of steam boilers, chimneys, and accessories; steam piping and distribution. Prerequisites: Machine design 35 and Thermodynamics 121.

Hours to be arranged; Professor GRUMBEIN, 16 M. H.

125. Steam Turbines. (3 Hrs.) Optional for fourth year students in mechanical engineering, and for graduate students. Flow of saturated and superheated steam and the theory and design of the steam turbine. Prerequisite: Heat engines 122.

Second semester; M. W. F., 9:00; Professor CHURCH, 26 M. H.

126. Gas Engines and Gas Engineering. (3 Hrs.) Primarily for fourth year and graduate students. Optional for fourth year students in mechanical engineering. The study of fuel gases, gas production and transmission, gas engines, etc. Prerequisite: Heat engines 122.

Second semester; M. W. F., 11:00; Dean JONES, 16 M. H.

127. Heating and Ventilating. (3 Hrs.) Primarily for fourth year students. Optional for students in mechanical engineering. Principles, comparative merits and design of various systems of ventilating, and heating by hot air, hot water, steam, electricity. A careful study of the systems in the different University buildings. Prerequisite: Thermodynamics 121, or Steam and gas machinery 120. (Not given 1913-'14).

Second semester; M. Tu. W., 8:00; Professor GRUMBEIN, 14 M. H.

128. Development and Utilization of Power. (3 Hrs.) For fourth year and graduate students. Optional for fourth year students

in mechanical engineering. Historical development of heat engines, motors, including the stationary and marine engines, pumping engines, locomotives and accessories, such as pumps, heaters, economizers, condensers, purifiers, etc., with special reference to economy in power production and its effects on the manufacturing interests. Prerequisite: Power plant design 123.

Second semester; M. W. F., 9:00; Professor EMORY, 20 M. H.

129. House Heating and Ventilating. (2 Hrs.) Primarily for students in home economics. This course includes the study of the plumbing, heating and lighting systems in private houses; approximate cost; location of simple house plans; exterior finish; interior finish of walls, woodwork and floors. Prerequisite: Drawing 21, Home economics 5. (Not given 1913-'14).

Second semester; Tu. F., 10:00; Professor GRUMBEIN, 16 M. H.

130. Mechanical Laboratory. (2 Hrs.) Primarily for third year men. Required of all candidates for degrees in engineering. Theory, calibration and use of steam engine indicators, steam gages, thermometers; calorimeter tests of coal and natural gas; testing lubricating oil; analysis of flue gases; efficiency tests of simple engines, pumps, dynamos, motors and machinery of power transmission. Prerequisite: Physics 7 and Statics 70, and accompanying Steam and gas machinery 120 or Thermodynamics 121.

First semester; first section, S., 8:00; second section, F., 2:00; Dean JONES, Professor GRUMBEIN and assistants, 10 M. H.

131. Mechanical Laboratory. (2 Hrs.) Required for all degrees in engineering. Continuation of Mechanical laboratory 129. Tensile, torsional, compressive, and transverse tests or wrought iron, cast iron, steel, and timber; transverse, compressive and absorption tests of stone, brick, cement, and concrete; also tests for fineness, specific gravity, time of setting, and constancy of volume of concrete. Prerequisites: Mechanical laboratory 130 and Mechanics of materials 71.

Second semester; first section, S., 8:00; second section, Th., 2:00; Dean JONES, Professor GRUMBEIN and assistants, 10 M. H.

132. Engineering Laboratory. (2 Hrs.) Primarily for fourth year students. Required for degrees in mechanical, electrical and mining engineering. Tests of injectors, calorimeters, separators, multiple expansion steam engines, gas engines, steam boilers, air compressors, hydraulic motors, fans, blowers, and steam heating apparatus; practice in valve setting, flow of steam through orifices and pipes; application of Hirn's analysis to the steam engine; etc. Prerequisite: Mechanical laboratory 131.

First semester; Th., 8:00; Dean JONES, and Professor GRUMBEIN, 10 M. H.

133. Engineering Laboratory. (2 Hrs.) Required for degrees in mechanical and electrical engineering. Continuation of Laboratory 132. Combined tests of performances of boilers, engines, electrical and other power transmission machinery; testing of plants away from the University, when opportunity affords; special research work. Prerequisite: Engineering laboratory 132.

Second semester; Th., 8:00; Dean JONES, and Professor GRUMBEIN, 10 M. H.

134. Engineering Laboratory. (— Hrs.) Primarily for graduates and advanced students. Commercial tests and research work. Prerequisite: Engineering Laboratory 133. Credit will be given on the basis of the time spent in the laboratory and the progress of the student.

Hours to be arranged; Dean JONES, and Professor GRUMBEIN.

135. Thesis. (3 Hrs.) Optional for fourth year students in mechanical engineering. Investigation or original research on some special topic relating to steam, gas or experimental engineering.

Second semester; hours to be arranged; Dean JONES, and Professor GRUMBEIN.

STRUCTURAL AND HYDRAULIC ENGINEERING

141. Roofs and Bridges. (4 Hrs.) Primarily for third year students. Required of all candidates for the degree of B.S.C.E. Consists of three recitations and one drawing period per week. Stresses in plate-girder bridges and in simple roof and bridge trusses due to dead, live, impact, wind and snow loads; methods for determining the various loads by both analytical and graphical methods. Complete design of a wooden roof truss, including detailed drawing and estimate of weight. Prerequisite: Mechanics of materials 71.

Second semester; M. Tu. Th., 10:00, and Th., 2:00 to 5:00; Professor DAVIS, 30 M. H.

142. Bridge Design. (5 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.C.E. Four exercises in the drafting room and one lecture or recitation each week. Computations and drawings are made for the complete design of a plate-girder and a riveted or pin-connected Pratt truss bridge. The computations determine the sections of all members, as well as the details, splices, riveting, etc. Prerequisite: Roofs and Bridges 141.

First semseter; lecture Tu., 9:00; drawing room Tu., 10:00 to 12:00; Th. 9:00 to 12:00; W. F., 2:00 to 5:00; Professor DAVIS, 30 M. H.

143. Advanced Structures. (3 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. Determination of the loading and stresses in cantilevers, continuous girders and trusses, swing bridges, and metal arches; the arches include both the two-hinged and the three-hinged types in the spandrel-braced and arch-ribbed forms. Prerequisite: Roofs and Bridges 141.

Second semester; M. W. F., 9:00; Professor DAVIS, 30 M. H.

144. Structural Engineering. (2 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.M.E. A course of two recitations per week devoted to the study of the loads and stresses in simple beam and truss bridges and in roof trusses. The aim of this course is to give the student an insight into the design of engineering structures, while little emphasis is placed on the details of construction. Prerequisite: Mechanics of materials 71.

First semester; Tu. W., 11:00; Professor DAVIS, 30 M. H.

145. Steel Building Design. (3 Hrs.) For fourth year and graduate students. Elective. Mill buildings and office buildings of steel. The design of trusses, beams, columns, and bracing for all loads; a critical study of details, methods of erection, weights and costs. A small mill building is completely designed and shop drawings made for same. Prerequisite: Roofs and Bridges 141.

Hours to be arranged; Professor DAVIS, 30 M. H.

146. Foundations and Masonry Construction. (3 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. Comprises sheet piling, coffer dams, cribs, metal cylinder piers, piles, pneumatic caissons, open caissons, and other forms of bridge foundations; building foundations and methods of underpinning the same. The general subject of masonry construction is taken up. Prerequisite: Mechanics of materials 71, and Mechanical laboratory 130.

First semester; M. W. F., 9:00; Professor DAVIS, 30 M. H.

147. Concrete Construction. (4 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. A study is made of the constituent elements of concrete and properties of plain concrete, both from the experimental and theoretical standpoints. Special attention is given to the mechanics underlying the design of concrete beams, columns, and floor systems, to experimental investigations and to the methods of construction of concrete structures. Prerequisite: Foundations and masonry construction 71.

Second semester; Tu. Th., 9:00; W. F., 2:00 to 5:00; Professor DAVIS, 30 M. H.

148. Sanitary Engineering. (2 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.C.E. The course is divided into two parts; first, the sewage-carriage system; secondly, the modern methods of sewage disposal. Under the first is treated the design and construction of house-laterals, street-laterals and mains. The hydraulics of the flow of sewage in pipes is taken up, and the relative advantages of tile, iron and cement pipe discussed. Prerequisite: Hydraulics 73.

First semester; Tu. Th., 8:00; Professor DAVIS, 30 M. H.

149. Water Supply Engineering. (3 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.C.E. The quantity of water required for city and town supplies, hydrology of drainage basins, stream flow and ground water supplies, determination of the necessary storage to insure a given supply, design of reservoirs, standpipes, etc., are studied. Conditions affecting the quality of water and the various means of water-purification are dealt with. Prerequisite: Hydraulics 73.

First semester; M. W. F., 8:00; Professor DAVIS, 30 M. H.

150. Hydraulic Construction and Water Power Engineering. (4 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. in Option 1. Design and construction of high masonry dams, including a problem of the complete design, with working drawings, of a special masonry dam. Irrigation engineering, including special problems dealing with the storage and distribution of water. The engineering features of water power are taken up. Prerequisite: Hydraulics 73.

Second semester; Tu. Th. F., 8:00; W., 11:00; Professor DAVIS, 30 M. H.

151. Hydraulic Measurements. (1 Hr.) Primarily for fourth year and graduate students. The methods of measuring the volume of water flowing in open channels by means of floats and current meters. This work is made particularly effective through the accessibility of the Monongahela river. The principles governing the measurement of small quantities, as by orifices, weirs, etc., are treated exhaustively, and periodicals are searched for experimental data along these lines. Prerequisite: Hydraulics 73.

First semester; M., 2:00 to 5:00; Professor DAVIS, 30 M. H.

152. Thesis. (3 Hrs.) For fourth year students. Required of all candidates for the degree of B.S.C.E. Special design, investigation or original research on some assigned topic relating to structural, hydraulic or sanitary engineering.

Second semester; hours to be arranged; Professor DAVIS.

GENERAL AND MISCELLANEOUS

160. Building Superintendence. (2 Hrs.) An elective course arranged for fourth year students in engineering and others having the preparation. Study of construction and inspection of the foundation, stone, cement, brick work, roof trusses, roof covering, veneer work, cage construction, preservation of iron work, fire proofiing, plastering, inspection of gas fitting, electric and heating systems. Specifications and contracts. Prerequisite: Kinetics 72.

Either semester; time to be arranged; Professor EMORY, 20 M. H.

161. Contracts and Specifications. (2 Hrs.) Primarily for fourth year men. Required of all candidates for the degree of B.S.C.E. General laws of contracts and specification writing. The fundamental principles of contract essentials are first taken up, followed by contracts dealing with agency, torts, independent contractor, corporations, partnerships, sales and transportation. Specification writing is taken up and the student by actual practice is taught the elements of the work.

Second semester; M. W., 8:00; Professor EMORY, 30 M. H.

162. Engineering Society. (1 Hr.) Primarily for third year students. Required of all candidates for degrees in engineering. Membership, attendance and active participation in the Engineering Society. See special announcements page 127.

Throughout the year; fortnightly, F., 7:30 p. m.; Professor EMORY, 15 M. H.

163. Engineering Society. (1 Hr.) For fourth year students. Required of all candidates for degrees in engineering. Continuation of Engineering 162.

Throughout the year; fortnightly, F., 7:30 p. m.; Professor EMORY, 15 M. H.

THE SCHOOL OF MINES

ORGANIZATION AND PURPOSE

The School of Mines has been organized in response to a demand from the mining interests of the state, primarily for the young men in the mining districts to whom the opportunity of a high school training is denied. Its aim is to provide a practical and theoretical training for those who wish to follow mining as a profession and whose preparation and available time are not sufficient to take the regular four years' college course.

In order to make this feature of the greatest possible benefit the entrance requirements have been made very liberal. The full course extends over a period of three years of twenty-four weeks each, but the work has been so arranged that much benefit may be derived by attending one or two years. Each year is divided into two terms of twelve weeks each, so that during the remaining part of the year, the student may engage in practical work at the mines, thus enabling those of limited means to meet the expenses of the following year's course.

The arrangement of the courses is made with the object of insuring a full and complete preparation for the fire bosses' examination at the end of the second year. The privilege is then open to taking the third years' work which prepares for the mine foreman's examination. With the benefit of these three years, plus the advantages derived through being engaged in practical work at the mines, the foundation will be laid for further progression to positions as mine superintendents, mine inspectors, etc.

FACULTY

The instruction in the School of Mines will be given principally by the regular faculty of the College of Engineering, with assistance from other departments of the University. From time to time lectures will be delivered on special mining subjects by eminent authorities on mining from this and other states. The staff of the State Department of Mines will co-operate in the work and will render all possible assistance.

EQUIPMENT

The shops, drawing rooms, laboratories, machines, instruments, and apparatus of the College of Engineering; the equipment of the other scientific departments of the University; and the University Library are at the disposal of the students in mining. In order to provide the opportunity for personal observation of special phenomena connected

with mining, the Elkins Coal and Coke Company has very generously offered the use of one of their mines.

ADMISSION

Applicants who are at least sixteen years of age, and who have completed satisfactorily the eighth grade of the public schools, or its equivalent will be admitted without examination. Such students should have an application blank properly filled out, signed by the teacher under whom they completed the work, and sent in before registration day.

Applicants whose home schools do not afford adequate instruction in the common school branches may enter, provided they have completed arithmetic and have a fair knowledge of the English language. Should there be any questions concerning the students' entrance qualifications, he should write to the Dean of the College, or to the Professor of Mining Engineering, setting forth fully his educational preparation. It is not the intention to bar anyone who can take this work with profit to himself.

THE SCHOOL YEAR

The first sessions will open on September 15th, 1913, and close on March 20th, 1914. It will be divided into two working terms of twelve weeks. The usual Christmas vacation will begin December 21, 1912, and extend to January 5, 1913. This allows an interval of twenty-six weeks before the opening of the second years' work in September, 1913.

FEES AND EXPENSES

Tuition is free to West Virginia students. For students from other states the tuition is $10.00 per quarter.

A matriculation fee of $5.00 is payable upon entering the school by all students except those holding appointments as cadets.

The contingent fee is $2.00 per quarter and is payable by all students except those holding appointments as cadets.

All students are required to pay a regular athletic fee of $2.00 per quarter which entitles them to the use of the gymnasium.

The entire expense for one year exclusive of traveling expenses and clothing need not exceed $100.00 to $150.00.

PROVISIONAL OUTLINE OF THE COURSE

First Year

First Term

	Hours credit
English	5
Algebra	5
Woodworking	3
Freehand Drawing	2
Mine Timbering	3
Military Drill	1
	19

Second Term

	Hours credit
English	5
Algebra	5
Drawing	3
Forging	2
Mine Gases	3
Military Drill	1
	19

Second Year

First Term

	credit Hours
English or Metallurgy of Fuels	2
Plane Geometry	5
Chemistry	4
Machine Shop	2
Drawing	2
Mine Pumps and Drainage	3
Military Drill	1
	19

Second Term

	credit Hours
English or the Manufacture of Coke	2
Plane Geometry	5
Chemistry	4
Pipe Fitting	2
Drawing	1
Mine Ventilation	4
Military Drill	1
	19

Third Year

First Term

	Hours credit
Physics	4
Solid Geometry	5
Geology	3
Methods of Working	4
Mine Design	2
	18

Second Term

	Hoors credit
Physics	4
Plane Trigonometry	5
Engines & Boilers	3
Dust and Gas Explosions	1
Prevention of Mine Accidents	1
Recovery of Coal Mines after Explosions	2
Mine Design	2
	18

SUMMER SCHOOL COURSE

This is entirely distinct from the three year course outlined above and is given in the summer months. The object is the same in each, but in the summer course it is the more mature men for whom the benefit is intended. It is designed solely for the needs of men holding authority in mines, such as superintendents, mine foremen, fire bosses, etc. It is believed that with the cares of the mine left behind, this session will be exceptionally profitable to the employer, because of the increased knowledge and rejuvenated enthusiasm on the part of the official and that it will be valuable to the employee, for the same reasons and also because he will be benefited by the exchange of ideas with practical men from various sections of the state. While originally ments. The first session will be held in the summer of 1913 if a sufficient number of students apply for the course in advance. A circular fully describing this feature will be issued by Jan. 1, 1913, and sent to anyone as requested.

Should there be sufficient demand, summer classes for the purpose of preparing for examination fire bosses and mine foremens' certificate will also be organized.

THE COLLEGE OF AGRICULTURE

FACULTY

THOMAS EDWARD HODGES, LL.D., *President*

E. DWIGHT SANDERSON, B.S.Agr., *Dean*

THOMAS CLARK ATKESON, Ph.D., *Professor of Animal Husbandry*

BERT HOLMES HITE, M.S., *Professor of Agricultural Chemistry*

WILLIAM HORACE ALDERMAN, B.S.Agr., *Professor of Horticulture*

CALVIN R. TITLOW, *Director of Agricultural Extension*

ARTHUR LINCOLN DACY, B.S., *Associate Professor of Horticulture*

ORVILLE M. JOHNSON, B.S.Agr., *Associate Professor of Farm Management*

ISAAC SCOTT COOK, JR., B.S.Agr., *Associate Professor of Agronomy*

LEONARD MARION PEAIRS, B.S.Agr., M.S., *Associate Professor of Entomology*

PAUL BOMBERGER BENNETCH, B.S.Agr., *Associate Professor of Dairy Husbandry*

CHARLES AUGUSTUS LUEDER, D.V.M., *Assistant Professor of Veterinary Science*

EUGENE CURTIS AUCHTER, B.S.Agr., *Instructor in Horticulture*

LUTHER FRANCIS SUTTON, B.S., B.S.Agr., *Instructor in Horticulture*

SAMUEL BENTON NUCKOLS, B.S.Agr., A.M., *Instructor in Agronomy*

RALPH EDWARD HUNT, B.S.Agr., *Instructor in Animal Husbandry*

EARL WOODDELL SHEETS, B.S.Agr., *Assistant in Agricultural Extension*

AIM AND SCOPE

The training given by the College of Agriculture is designed to fit its students for farm life, or for work as teachers or investigators of agricultural subjects. A thorough training in the general sciences underlying scientific agriculture is given. The larger part of the course consists of technical work in the various branches of agriculture. The aim in these courses is to make plain the principles underlying agricultural science, and to give as much practice work as facilities will permit, so that the student will receive a training fitting him for efficient work. The curriculum is planned to give the student a general knowledge of all phases of agriculture, but at the same time to afford him opportunity to specialize in the subjects in which he is particularly interested.

In addition to the technical work in agriculture and general science, courses in English, public speaking and economics are required in the College of Arts and Sciences, as the college hopes to train its students to be not only progressive farmers but good citizens.

EQUIPMENT

The class rooms and laboratories of the College of Agriculture are in Martin Hall. On the basement floor are a modern farm dairy and creamery laboratory, a milk testing laboratory, a horticultural laboratory, and a work room. On the first floor are recitation rooms and offices for the various departments. A large laboratory for work in agronomy and soils has been installed on this floor. All the laboratories are equipped with the best apparatus. The entomological laboratory is on the second floor of the Agricultural Building, and is well equipped with microscopes, charts, collections and a library. Three greenhouses are available for work in plant propagation and practical work in floriculture and vegetable growing under glass.

The laboratories and apparatus of the scientific departments of the University, and the libraries of the Agricultural Experiment Station and University are at the command of the students in the College of Agriculture.

ENTRANCE REQUIREMENTS

For admission to the College of Agriculture, the candidate must have credit for fourteen units, obtained by examination or on certificate from a duly accredited secondary school.

Of the fourteen units which must be offered for admission to the course leading to the degree of Bachelor of Science in Agriculture, nine are definitely prescribed as follows:

		Units
English		3
French, German, or Latin (German is recommended)		2
History		1
Mathematics		2
Algebra	1	
Plane geometry	1	
Science		1
The unit offered may be either physics, chemistry, botany, zoology, or botany and zoology.		
Total prescribed		9

The remaining five units must be chosen as elective from the list given on page 50 in the announcements of the College of Arts and Sciences. A detailed statement of the work required for each unit of required and elective work is given on page 42.

On entering the college, each student will be examined as to his ability to perform the various operations necessary to carry on farm work and as to his knowledge of farming. A general outline of this examination and requirement is found on page . A failure to pass this examination will not exclude him from college; another opportunity will be provided at the close of the second year to pass off the requirement. If the student then fails he will be required to remain at the college during the summer vacation between his second and third year, or to work for the same period on some farm approved by the dean. He will receive his final examination on the subject at the beginning of the junior year. This work will be reported on as a preparatory study, and will have no credit value as a part of the required work of the course.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Credits Required

The degree of Bachelor of Science in Agriculture will be conferred upon any student who satisfies the above entrance requirements, and offers one hundred and forty-four hours credit for college courses including a satisfactory thesis.

Required and Elective Courses

Of the one hundred and forty-four hours credit required for the degree, one hundred and nine hours are definitely prescribed, as indicated in the curriculum below. Students not required to take work in military science must offer two additional elective credits to make up the total of one hundred and nine. The remaining thirty-five hours' credit may be chosen from the elective courses offered. Courses amounting to twenty-three hours' credit in all must be elected in the department in which the student elects to take his thesis, or such courses as may be prescribed by his class officer, and courses amounting to twelve hours in all must be elected from the courses given in the College of Arts and Sciences.

Class Officer

The Dean of the College of Agriculture will act as class officer for all freshmen and sophomore students in agriculture. The head of the department in which the student elects thesis work will be his class officer for the junior and senior years.

Theses

Every candidate for the degree of Bachelor of Science in Agriculture will be required to prepare a thesis on some subject relating to a special branch of agriculture or other department of science applied to agriculture. The thesis must be based upon the students' personal work. Before the close of the sophomore year each student shall indicate to the dean the department in which he wishes to take his thesis. Theses may be elected in the following departments.

Agronomy and soils
Agricultural chemistry
Animal husbandry
Dairying
Botany and bacteriology
Education
Farm management
Horticulture
Poultry husbandry
Entomology

The subject of the thesis with the approval of the head of the department in which it is to be taken must be presented in writing to the dean not later than September first of the school year in which the student is a candidate for a degree. The completed thesis must be presented to the head of the department concerned for his approval not later than thirty days prior to commencement day.

TRAINING FOR TEACHERS OF AGRICULTURE

Students who desire preparation for teaching agriculture in the schools of West Virginia may secure a state teachers' certificate in addition to the degree of Bachelor of Science in Agriculture by taking the regular curriculum outlined below with the substitution of courses 1, 2, 3, 4, 5, 6, 7, and 16 in Education in place of 23 hours of the elective courses in the junior and senior years.

This course will give the student ample training in the fundamentals of modern agriculture for teaching in secondary schools, and also in the necessary work in Education. The demand for teachers of agriculture in high schools and academies is much in excess of the supply of teachers and this promises to be true for many years to come.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Freshman Year—First Semester

Introductory physics (Phys. 1)	8:00 M.W.F.	3	
Free-hand drawing (Fine Arts 16)	8:00-11:00 T.Th.	2	
Rhetoric and comp. (Engl. 1)	9:00 M.W.F.	3	
Inorganic chemistry (Chem. 1)	11:00 M.W.F., 2:00 M.	4	
Breeds of live stock (An. Husb. 1)	11:00 T.Th., 9:00 S.	3	
Military science (1)	12:00 M.T.W.Th.	1	
Physics laboratory (Phys. 2)	2:00 T. or Th.	1	
Forge Shop (Eng'g 7)	2:00 T.W. or Th. F. (First half semester.)	1	18

Freshman Year—Second Semester

Introductory physics (Phys. 3)	8:00 M.W.F.	3	
Rhetoric and comp. (Engl. 2)	9:00 M.W.F.	3	
Stock judging (An. Husb. 8)	9:00 S.	1	
Plant propagation (Hort. 1)	10:00 T.Th., 2:00 T.	3	
Inorganic chemistry (Chem. 2)	11:00 M.W.F., 2:00 M.	4	
Military science (2)	12:00 M.T.W.Th.	1	
Physics laboratory (Phys. 4)	2:00 Th.	1	
Mechanical drawing (Eng'g. 23)	2:00 W.F.	2	18

Sophomore Year—First Semester

Practical pomology (Hort. 2)	8:00 M.W., 2:00 T.	3	
Soil physics (Agron. 1)	8:00 T.Th., 2:00 Th.	3	
General botany (Bot. 1)	9:00 W.F., 2:00 M.W.	4	
Argument and debate (Engl. 66)	10:00 T.Th.	2	
General geology (Geol. 2)	11:00 M.W.F.	3	
English literature (Eng. 26)	11:00 T.Th.	2	
Military science (3)	12:00 M.T.W.Th.	1	18

Sophomore Year—Second Semester

Farm crops (Agron. 2)	8:00 T. Th., 2:00 Th.	3	
Vegetable gardening (Hort. 3)	8:00 W. F., 2:00 F.	3	
General botany (Bot. 2)	9:00 W. F., 2:00 M.W.	4	
Animal breeding (An. Husb. 2)	10:00 T.Th.	2	
English literature (Engl. 27)	11:00 T.Th.	2	
Farm dairying (Dairy. 1)	11:00 M.W., 2:00 T.	3	
Military science (4)	12:00 M.T.W.Th.	1	18

Junior Year—First Semester

Animal biology (Zool. 1)	8:00 T.Th., 2:00 Th.F.		
or		4	
General entomology (Entom. 1)	8:00 M.W.F., 2:00 Th.		
Plant physiology (Bot. 12)	10:00 T.Th., 2:00 T.		
or		3	
Anatomy and physiology (Vet. Sc. 1)	10:00 T.Th., 2:00 T.		
Soil chemistry (Agr. Chem. 1)	11:00 M.T.W.Th.F., 2:00 W. (First half semester)	2½	
Soil management (Agron. 3)	11:00 T.W.Th.F., 2:00 W. (Second half semester)	2½	
Elective agriculture		6	18

Junior Year—Second Semester

Farm management (1)	8:00 M.W.F.	3	
Vertebrate zoology (Zool. 2)	8:00 T.Th., 2:00 Th. F.	4	
or			
Economic entomology (Entom. 2)	8:00 T.Th., 2:00 Th.	3	
General bacteriology (Bact. 1)	9:00 T.Th., 2:00 T.	3	
Feeds and feeding (An. Husb. 3)	11:00 M.W.F.	3	
Elective agriculture		5 or 6	18

Senior Year—First Semester

Principles of economics (Econ.)1	8:00 M.T.W.Th.F.	5	
Plant breeding (Hort. 13)			
or			
Advanced animal breeding (An. Husb. 11)	10:00 M.T. and hour to be arranged	3	
Elective agriculture		5	
Elective in Arts and Science		5	18

Senior Year—Second Semester

Rural economics (Farm Manag. 2)	8:00 T.Th., 10:00 F.	3	
Sociology (2)	11:00 M.W.F.	3	
or			
Labor problems (Econ. 7)	11:00 M.W.F.	3	
or			
Am. social and economic history (Hist. 29)	11:00 M.W.F.	3	
Elective agriculture		6	
Elective in Arts and Science		6	18

COURSES OF INSTRUCTION

Only the technical courses offered primarily for the students in agriculture are described here. For detailed description of the other courses listed on page 164 as required or elective in the agricultural curriculum, see the announcement of courses in the College of Arts and Sciences and the College of Engineering.

Courses marked by a star may be offered for credit in the College of Arts and Sciences.

AGRICULTURAL EDUCATION

16. Agricultural Education. (2 Hrs.) Required of juniors who desire a state teacher's certificate. (See page 70.) Nature study and agriculture in the elementary and secondary schools. Organization of programs of studies and the principles and methods of teaching. Observation of elementary and secondary classes in nature study and agriculture. Lectures and recitations, reading of literature, and practical teaching.

Second semester; T. Th., 11:00.

AGRONOMY

Associate Professor COOK and Mr. NUCKOLS.

***1. Soils Physics.** (3 Hrs.) Required of sophomores. Lectures and recitations upon the formation, kinds, and physical and chemical properties of soils; conditions of soil moisture, its movements, amount available to crops and conservation; relation of air to soils, temperature of soils, effects of drainage, objects and methods of tillage; physical effects of lime on soils; laboratory work and experiments with soils.

Second semester; T. Th. 8:00; Professor COOK, 4 M., laboratory, Th., 2:00.

***2. Farm Crops.** (3 Hrs.) Required of sophomores. Lectures and recitations on cereals, forage crops, potatoes and miscellaneous crops; seeding, cultivation, marketing and history; time and methods of planting and preparation of soil.

First semester; T. Th., 8:00; laboratory, T., 2:00; Professor COOK, 4 M.

3. Soil Management. (2½ Hrs.) Required of juniors to be taken in connection with course 1 in agricultural chemistry. A study of soil management for profitable and permanent agriculture with reference to correct moisture content in maintaining the proper physical condition of the soil in cultivation and securing the greatest value

from fertilizers and leguminous crops; food requirements of plants; effect of different amounts and combinations of plant foods and soil amendments upon plant growth; effect of various crops and different systems of farming upon depletion of soil fertility; proper methods of preserving and applying manure; effect of crop rotation and green manuring on soil fertility; needs and kinds of commercial fertilizer for the soil, from the standpoint of economy and permanent agriculture.

Second half first semester; 11:00, T. W. Th. F.; laboratory, W., 2:00; Professor COOK, 4 M.

4. Farm Machinery. (2 Hrs.) Elective. The study of power machinery, setting up and taking apart of grain binders, mowers, drills, corn harvesters, corn planters, plows, cultivators, and proper adjustments of machines to perform accurate work.

First semester; F. 10:00; laboratory, first half-semester, W., 2:00; second half-semester, S., 8:00-12:00; Professor COOK, 4 M.

5. Rural Engineering. (3 Hrs.) Elective. Lectures on tile drainage, construction of fences, barns and sheds, feed racks for cattle and sheep, the uses of concrete on the farm, and the methods of determining the area of fields; practice in laying out tile drains and in drafting working drawings. Prerequisite: Agronomy 1 and Engineering 23.

First semester; T. Th., 9:00; laboratory, Th., 2:00; Professor COOK, 4 M.

6. Soil Surveying and Mapping. (2 Hrs.) Elective. This course will take up the mapping of a selected area and making a detailed survey of the different types of soils found in it. Samples of soils will be taken and a mechanical analysis made of same, to determine the names of the types mapped. Prerequisites: Agronomy 1 and 2.

Summer; hours to be arranged; Professor COOK, 4 M.

7. Corn Growing and Judging Grains. (3 Hrs.) Elective. Requirements of the growth of the corn plant, selecting, storing, testing, grading, planting, cultivating and harvesting; the cost of production and use of the crop. Prerequisite: Agronomy 2.

Second semester; T. Th., 9:00; laboratory, W., 2:00; Professor COOK, 4 M.

8. Advanced Agronomy. (2 Hrs.) Elective. Advanced work to meet the needs of the student.

Summer; hours to be arranged; Professor COOK, 4 M.

9. Thesis. (2 Hrs.) First and second semesters; hours to be arranged.

ANIMAL HUSBANDRY

Professor ATKESON

***1. History and Characteristics of Breeds.** (3 Hrs.) Required of freshmen. This course deals with all the improved breeds of live stock. The origin, distribution and characteristics of each breed will be studied. Practice in stock judging and study of living animals of various types will be given as far as possible.

First semester; T. Th., 11:00; laboratory, S., 9:00-12:00; 8 M.

2. Animal Breeding. (2 Hrs.) Required of sophomores. A study of the principles of animal breeding; heredity; atavism; variation; selection; correlation; in-breeding; cross breeding and grading; influence of climate and environment upon habits and development. Prerequisite: Animal Husbandry 1.

Second semester; Th., 10:00; 8 M.

3. Feeds and Feeding. (3 Hrs.) Required of juniors. Laws of nutrition; composition and digestibility of feeding stuffs; feeding farm animals; feeding for milk, muscle, and fat; sources of food; how animals use food; study of rations and feeding standards.

Second semester; M. W. F., 11:00; 8 M.

4. Live Stock Management. (3 Hrs.) Elective. Care and handling of domestic animals in barn and fields; the management of flocks and herds; the care of work animals and driving horses. Prerequisites: Animal Husbandry 1, 2 and 3.

First semester; Th. F., 9:00, and practical work to be arranged; 8 M.

5. Advanced Animal Husbandry. (3 Hrs.) Elective. Advanced work in animal husbandry arranged to meet the needs of the students. Study and comparison of the literature of the subject. Class discussions. Prerequisites: Animal Husbandry 3 and 4.

First semester; hours to be arranged; 8 M.

6. Beef Production. (2 Hrs.) Elective. A systematic study of the most successful and economical methods of producing beef cattle, including a study of market types, fattening for market and marketing. Prerequisites: Animal Husbandry 1, 3 and 4. Given in alternate years with 7.

Second semester; T. Th., 9:00; 8 M.

7. Pork and Mutton Production. (2 Hrs.) Elective. A study of the different breeds of sheep and hogs and the best and most economical methods of producing pork and mutton. Prerequisites: Animal Husbandry 1, 3 and 4. Given in alternate years with 6.

Second semester; T. Th., 9:00; 8 M.

8. Stock Judging. (1 Hr.) Required of freshmen. The work consists of score card practice in judging horses, cattle, sheep, and swine, and familiarizes the student with the general points to be observed in judging live stock.

Second semester; S., 9:00; 8 M.

10. Advanced Stock Judging. (2 Hrs.) Elective. Judging market classes and all breeds of pure bred animals; judging groups of four or more the same as at country fairs. Trips will be made to stock farms where students may have an opportunity to judge and observe the management of flocks and herds by successful stockmen. Prerequisites: Animal Husbandry 1 and 8.

Second semester; hours to be arranged; 8 M.

11. Advanced Animal Breeding. (3 Hrs.) Elective. This course embraces a general study of the principles of breeding, and a historical study of their results, with features relating to higher breeding of pure bred stock. Prerequisites: Animal Husbandry 1, 2, 8, and 10.

First semester; M. T., 10:00, and hour to be arranged; 8 M.

12. Thesis. (2 Hrs.) First and second semesters; hours to be arranged.

AGRICULTURAL CHEMISTRY

Professor HITE

1. Soil Chemistry. (2½ Hrs.) Required of juniors. To be taken in connection with Agronomy 3. A course of lectures including the chemistry of soil formation, deterioration and improvement, and having to do primarily with the maintenance of soil fertility. Soil troubles and possibilities in West Virginia receive special attention. Lecture experiments are supplemented by laboratory and greenhouse tests. Prerequisites: Chemistry 1 and 2.

First half first semester; M. T. W. Th. F., 11:00.

2. Advanced Agricultural Analysis. (5 Hrs.) Elective for seniors. A critical study of prescribed agricultural chemical methods and agricultural problems consisting essentially of analytical work. The course is intended for those who would extend a good general knowledge of analytical chemistry to meet the demands of experiment stations, and food and fertilizer controls. Prerequisites: Chemistry 1, 2, 4, 5, and Agricultural Chemistry 1.

First semester; hours to be arranged.

3. Advanced Agricultural Analysis. (5 Hrs.) Elective for seniors. A continuation of Course 2.

Second semester; hours to be arranged.

DAIRY HUSBANDRY

Associate Professor BENNETCH

1. Farm Dairying. (3 Hrs.) Required of sophomores. A general study of the secretion, composition, care and handling of milk; a study of cream ripening and churning; use of the Babcock tester and testing of cows with special reference to adaption to farm conditions.

Second semester; M.W., 11:00; T., 2:00; 6 M.

2. Testing Dairy Products. (2 Hrs.) Elective. A study of the commercial tests for butter-fat, moisture and acid in dairy products, including the use of the lactometer and modern acid tests.

First semester; W., 8:00 and 2:00; 6 M.

3. Milk Production. (4 Hrs.) Elective. A study of milk production, covering the care, handling, feeding and breeding of dairy cattle, the calculation of rations, and actual practice in feeding. Special attention is given to keeping herd records, test associations, and organized methods for improving the quality of dairy cattle.

First semester; M. T. W., 9:00; M. 2:00; 6 M.

4. Pure-bred Dairy Cattle. (2 Hrs.) Elective. A study of each of the improved dairy breeds, with special reference to families and pedigrees; a study of breeding problems and methods used for improving each breed, especially systems of advanced registry testing for official records.

Second semester; M. 9:00, M. 2:00; 6 M.

5. Dairy Cattle Judging. (2 Hrs.) Elective. A study of the types and characteristics of dairy cattle, with practice in scoring and judging groups of animals both for production and exhibition.

Second semester; Sat., 8:00-12:00; 6 M.

6. Dairy Buildings and Equipment. (2 Hrs.) Elective. This course includes a study of various plans for the construction of dairy buildings, covering the general principles involved, the drawing of plans for the construction of barns, storage houses, silos, milk-rooms, and shelters; also plans for the improvement of old buildings and the planning and laying out of dairy plants for special purposes.

Second semester; W. 9:00 and 2:00; 6 M.

7. Market Milk. (2 Hrs.) Elective. A study of the production, handling and marketing of cream and modified, certified and condensed milk.

Second semester; M. 10:00, T. 2:00, 6 M.

8. Thesis. (2 Hrs.) First and second semesters; hours to be arranged.

ENTOMOLOGY

Associate Professor PEAIRS

***1. General Entomology.** (4 Hrs.) A study of insects designed to give a thorough knowledge of their structure, classification, habits and local distribution. Lectures and recitations with text-book work; laboratory work, dissections, and drawing and classification by means of tables; field work, collection of insects in all environments found near the University.

First semester; M. W. F., 8:00; laboratory, Th., 2:00; A.

(It is advisable for students who can so arrange to take this course in summer school.)

2. Economic Entomology. (3 Hrs.) Required of juniors whose major is horticulture. A study of insects in their relation to man; life histories and habits of injurious insects; special consideration of general farm methods for the control of insects affecting staple crops, and of spraying machinery and the insecticides in use for the control of insects affecting horticultural crops. Laboratory work consists of the identification of injurious species in all their stages, and of field work in insect control. Prerequisite: Entomology 1.

Second semester; T. Th., 8:00; laboratory, Th., 2:00; A.

***3. Systematic Entomology.** (3 Hrs.) A continuation of the work in classification begun in Course 1. Prerequisites: Entomology 1 and Zoology 1.

First semester; hours to be arranged; A.

***4. Systematic Entomology.** (3 Hrs.) Continuation of course 3.

Second semester; hours to be arranged; A.

***5. Advanced Entomology.** (3 Hrs.) For students whose major is entomology. Entomological investigation of systematic, morphologic, or biologic problems. Prerequisites: Entomology 1, 3, and 4 and Zoology 1.

First semester; hours to be arranged; A.

***6. Advanced Entomology.** (3 Hrs.) Continuation of course 5.

Second semester; hours to be arranged; A.

***7. Insects and Disease.** (1 Hr.) A lecture course dealing with the more common insects known to be directly responsible for the spread of certain diseases in man. Assigned reference work. Prerequisite: Entomology 1.

8. Thesis. (2 Hrs.) First and second semesters; hours to be arranged; A.

FARM MANAGEMENT

Associate Professor JOHNSON

*1. **Farm Management.** (3 Hrs.) Required of juniors. Lectures upon choosing, equipping and operating a farm; types of farming; rental systems; farm labor; cost of production; successful marketing; farm records and accounts; different phases of specialized and general farming; rotations; fencing and buildings; management of manure and fertilizers; preparation of plans for the organization and management of specific farms. Prerequisite: Agronomy 1 and 2.

Second semester; M. W. F., 8:00.

*2. **Rural Economics.** (3 Hrs.) Required of seniors. The study of economics as related to all phases of rural life.

Second semester; Tu. Th., 8:00; F., 10:00.

3. **Advanced Farm Management.** (3 Hrs.) Elective. A continuation of Farm Management 7, in the further study of farm operations and cost of production. Prerequisite: Agronomy 1 and 2, and Farm Management 1.

Second semester; hours to be arranged.

4. **History of Agriculture.** (3 Hrs.) Elective. The history of agriculture beginning with ancient references and tracing it through all the stages of its development. A study of early agricultural experiment stations and their work will be taken up, as well as a study of our own experiment station and the United States Department of Agriculture, and their work in recent years.

Second semester; hours to be arranged.

5. **Field Work.** Summer School. Prerequisite: Farm management 1. Hours to be arranged.

6. **Thesis.** (2 Hrs.) Both semesters; hours to be arranged.

FARM OPERATIONS

Committee: Professors ALDERMAN, COOK and BENNETCH

Farm Operations. (No credit.) Required of all students entering the College of Agriculture after June 1, 1912. In event of their failure to pass the examination in Farm Operations by the end of their sophomore year students will be required to work one summer on the Experiment Station farm or for the same period on some farm approved by the committee in charge. Another examination will be given during the junior year, and in event of failure another summer's work will be required. In case of continued failure the student's degree

shall be withheld until he shall satisfy the requirements of the committee in charge. The examination will test the student's knowledge of every-day farm operations, such as feeding and care of live stock, familiarity with agricultural implements and their uses, knowledge of field and orchard crops, fertilizers, cultural methods and allied subjects. Opportunity will be given for a demonstration of the student's ability to do practical farm work, such as harnessing a team, driving, plowing, milking, and other operations. Previous experience in specialized farming, such as market-gardening, nursery work, bee keeping, poultry raising, etc., will be considered and proper credit given the student.

HORTICULTURE

Professor ALDERMAN, Associate Professor DACY, Mr. AUCHTER and Mr. SUTTON.

***1. Plant Propagation.** (3 Hrs.) Required of freshmen. A practical course on the propagation of agricultural plants; preparing the seed bed, seed testing, planting seed in greenhouse and field; propagation by cutting, layering, grafting and budding; nursery practice. The same course is offered as an elective in the summer school.

Second semester; T. Th., 10:00; laboratory, T., 2:00; Mr. SUTTON, 27 M.

2. Practical Pomology. (3 Hrs.) Required of sophomores. A study of the planting and management of orchards, including the question of location, air drainage, frosts and winds, selection of nursery stock, orchard plans, soils, fertilizers, cultivation, pruning, sprays and spraying, spray machines, harvesting and packing. Prerequisite: Horticulture 1.

First semester; M.W., 11:00; laboratory, T., 2:00; Mr. AUCHTER, 27 M.

3. Elementary Gardening. (3 Hrs.) Required of sophomores. The growing of vegetables for home use and market, the construction and management of hot beds and cold frames, garden soils and their treatment, varieties of vegetables, cultivation, fertilizers and manures, garden plans. Prerequisite: Horticulture 1.

Second semester; W. F., 8:00; laboratory, Th., 2:00; Professor DACY, 27 M.

4. Systematic Pomology. (3 Hrs.) Elective. Lectures, reference reading and recitations. The history, botany and classification of apples, pears, peaches, plums, cherries and grapes and their adaptation to West Virginia conditions. The laboratory work will include a careful

study and description of the fruits themselves aiming towards a thorough knowledge of West Virginia varieties. Students will be given practical training in judging and scoring fruit exhibits and will have entire charge of the annual fruit show held at the College. Prerequisites: Horticulture 1 and 2.

First semester; M. W., 9:00; Professor ALDERMAN, 27 M.; laboratory, W., 2:00; Professor ALDERMAN and Mr. AUCHTER, 27 M.

5. Small Fruits. (2 Hrs.) Elective. Lectures, recitations and discussions covering care and management of small fruit plantations, varieties and their adaptation to West Virginia soils and climate. Laboratory work on planting, pruning, training and caring for small fruits. Frequent trips will be made to the Experiment Station farm to study the experimental plats and varieties under test there. Prerequisites: Horticulture 1 and 2. The same course is offered in the summer school .

Second semester; Th., 9:00; laboratory Th., 2:00; Mr. SUTTON, 27 M.

6. Greenhouse Construction and Management. (3 Hrs.) Elective. Lectures and discussions upon modern greenhouse construction, heating, ventilation, adaptation of various types of houses to special crops and conditions. Laboratory work in drafting and designing of greenhouses and actual work in the greenhouse throughout the term. Prerequisites: Horticulture 1 and 3.

First semester; F., 9:00; laboratory F., 2:00, and one period to be arranged; 27 M.

7. Commercial Orcharding. (3 Hrs.) Elective. A study of the management of commercial orchards in West Virginia. Lectures, recitations and reference reading, covering harvesting, marketing, and storing of fruit, transportation, cooperation, general and special markets. Laboratory work on pruning, spraying, grading and packing of fruit. Prerequisites. Horticulture 1 and 2.

First semester; T. Th., 9:00; laboratory, Th., 2:00; Mr. AUCHTER, 27 M.

8. Advanced Market Gardening. (3 Hrs.) Elective. Designed for students who will specialize in market garden work. The study of the management of commercial enterprises, growing of special crops on a large scale, comparison and succession of crops, irrigation, manures, packing, storing and marketing of vegetables; visits to some markets and commercial plants. Prerequisites: Horticulture 1 and 3.

Second semester; W. F., 9:00; laboratory F., 2:00; Professor DACY, 27 M.

9. Advanced Practical Pomology. (1 Hr.) A trip occupying one week's time will be made through the fruit regions of Eastern Virginia, Virginia, Maryland and Pennsylvania, with probably a short visit at the Department of Agriculture, Washington, D. C. As many orchards as possible will be visited, and a detailed report will be required. The cost of this trip will not exceed thirty dollars. Prerequisites: Horticulture 1 and 2.

First semester; Professor ALDERMAN.

10. Plant Industry Seminar. (1 Hr.) For juniors, seniors and graduate students in agronomy and horticulture. Elective for juniors, required of seniors and graduates. Papers will be prepared and read by the members of the class upon subjects pertaining to the improvement of soils and plants and general discussions held upon the papers presented. Students doing thesis work will report from time to time upon their investigations. This course may be continued more than one year and an additional credit given for each semester's work.

Second semester; M., 2:00; Professors ALDERMAN and COOK.

11. Thesis. (2 Hrs.) Students should arrange their problem before the close of their junior year so that materials may be on hand and no delay necessary the following year.

First and second semester; hours to be arranged; Professor ALDERMAN.

12. Horticultural Research. (1 or 2 Hrs. a semester). Open to juniors and seniors specializing in horticulture. Original problems will be investigated by the student and a detailed report of the work done will be submitted.

First and second semesters; hours to be arranged; Professor ALDERMAN.

13. Plant Breeding. (3 Hrs.) Required of seniors specializing in horticulture. A consideration of the principles of variation and heredity, together with theories of evolution and their practical application to problems of plant breeding; practical work in hybridizing, note-taking and selection at the station farm and in the greenhouse; special attention is given to problem work in biometry. Prerequisites: Horticulture 1, Botany 1 and 2, Entomology 1.

First semester; M. T., 10:00; laboratory, to be arranged; Professor ALDERMAN and Mr. AUCHTER, 27 M.

14. Landscape Gardening. (2 Hrs.) Elective. An elementary course in ornamental and landscape gardening, with special reference to the beautifying of the home grounds. Prerequisite: Horticulture 1.

Second semester; Th., 9:00; laboratory, F., 2:00; 27 M.

Graduate Work. An exceptional opportunity is offered for investigational work in horticulture. The small fruit plantation, the breeding plats, the truck garden, the hotbeds and the three greenhouses furnish excellent facilities and a rich fund of material for investigation work. Orchards in the vicinity of Morgantown also offer good opportunities for experimental work in renovation, fertilizing, pruning, spraying and other similar lines of work. A large and well equipped library containing all the leading horticultural publications and periodicals, an important item to research students, is open at all times for student use.

POULTRY HUSBANDRY

1. Poultry Breeds and Feeding. (3 Hrs.) Elective. Lectures, text book study and recitations on the origin, history and characteristics of the breeds of domestic poultry, and poultry feeding.

First semester; M. W. F., 9:00.

2. Poultry Methods. (3 Hrs.) Elective. Lectures, text book study and recitations on incubation, brooding, poultry house construction, killing and marketing poultry, and poultry diseases. Prerequisite: Poultry Husbandry 1.

Second semester; M. W. F., 9:00.

3. Practice in Poultry Methods. (3 Hrs.) Elective. Practice work in the operation of incubators and brooders, feeding chicks, and in the care and management of mature fowls. Prerequisite: Poultry Husbandry 1 and 2.

Second semester; hours to be arranged.

VETERINARY SCIENCE

Assistant Professor LUEDER

1. Anatomy and Physiology. (3 Hrs.) Elective. A systematic description of the bones, muscles, viscera, vascular, lymphatic and respiratory system. The structure of the ox, sheep, and pig, as contrasted and compared with that of the horse. The functions of the various organs and tissues of the body, the chemical constitution and physical laws which effect its growth, reproduction, and development.

First semester; T. Th., 11:00; laboratory, T. 2:00; 6 M.

2. Diseases of Farm Animals and Materia Medica. (3 Hrs.) Elective. A study of the important diseases of all domestic animals, methods of treatment, and drugs for their cure. Prerequisite: Veterinary Science 1.

Second semester; W. F., 8:00; W. 2:00; 6 M.

3. Clinic. (1 Hr.) Elective. Clinical work, giving the student a practical knowledge of handling and studying all kinds of diseased animals in the hospital; practical work in this course accompanies Veterinary Science 1 and 2.

First and second semester; hours to be arranged; 6 M.

4. The Horse. (2 Hrs.) Elective. A study of the most successful methods of handling stallions, jacks and brood mares, care of the foal, growing and developing young horses for market, and the mechanics of the horse. Prerequisites: Animal Husbandry 1, 2 and 3.

First semester; F., 10:00; W., 2:00; 6 M.

DIVISION OF AGRICULTURAL EXTENSION

C. R. TITLOW, *Director.*

E. W. SHEETS, *Assistant.*

The principal value of the Agricultural College as a teaching factor, is the training it gives young people who take its courses in residence. The Agricultural Experiment Station, as a national adjunct to the College, has an important field in discovering new truth pertaining to agriculture. If the work were thus limited, only a small percent. of the people of the state would receive direct and practical benefit from the work of the College. The same economic principle that justifies the expenditure of money for educating those who are able to attend the classes at the College, also justifies the expenditure of money in taking instruction from the College to those who are not able to come to it.

For this purpose, the Division of Agricultural Extension was formed.

To enable this division to reach the greatest possible number of people of the state, it is conducting its work through the following forms:

1. Agricultural schools and schools of home economics, held for one week at suitable centers.

2. Demonstrations in pruning fruit trees, spraying fruit trees, thinning fruit, packing fruit, mixing commercial fertilizer, and corn variety tests.

3. The encouragement of the teaching of agriculture in the rural schools by:

(a) Organizing boys' and girls' clubs for growing and judging corn, growing and canning vegetables,

(b) The monthly bulletin, West Virginia School Agriculture,

(c) Lectures at teachers' institutes, granges, clubs and other organizations.

4. Agricultural railway trains, with lectures and exhibits on horticulture, soils, farm crops and market gardening.

5. Educational exhibits at state and county fairs.

6. Farmers' reading circle courses.

7. Supervision of the county agricultural advisers and demonstrators.

8. Correspondence: This includes the identification of plants and insects, inquiries covering agricultural problems, and assistance to the school, the home, or other organizations towards starting or advancing movements to increase the worth and dignity of a rural life.

For further information concerning the work of this division, address Director TITLOW for a special bulletin.

THE SCHOOL OF AGRICULTURE

ORGANIZATION AND PURPOSE

The School of Agriculture was created by order of the Board of Regents on October 26, 1910, and will offer its third year of regular work beginning September 16, 1913. The school is located at Morgantown, and its work is to be carried on in connection with the College of Agriculture in the University, and under the direction of the Dean of that college.

The school has not been established, however, for the purpose of preparing students for entrance to the University or of competing with the high schools of the state. Its aim is to provide a practical training for the young men and women of West Virginia, who desire particularly to prepare themselves for more successful and useful life on the farm, and who may not be able to secure such training at their home schools.

FACULTY

The instruction in the School of Agriculture will be given for the most part by the regular faculty of the College of Agriculture with some assistance from other departments of the University.

EQUIPMENT

The laboratories and apparatus of the scientific departments of the University, and the libraries of the Agricultural Experiment Station and University are at the command of the students in the School of Agriculture. The farm, together with its gardens, experiment plats, laboratories, and collections are available for students desiring to acquaint themselves with the practical and scientific methods of conducting agricultural operations.

ADMISSION

Students who are sixteen years of age, or over, and who have completed satisfactorily the eighth grade, will be admitted without examination. Such students should have an application blank properly

filled out and signed by their teacher and sent in before registration day.

Students who have not completed the eighth grade will be expected to take an examination in arithmetic, United States history, English grammar, geography, reading, writing, and spelling. These examinations will be held September 15, 1913.

Applicants whose home schools do not afford adequate instruction in the common branches, or who may not have been able to complete the eighth grade, may with the permission of the Dean, be admitted with not more than two conditions, which must be removed according to instructions given the student upon admission.

Maturity of years and experience will be given due consideration, but in no instance should the student consider these sufficient to admit him. Whenever there is a question concerning the student's qualifications to enter he should confer with the Dean before coming to the University.

THE SCHOOL YEAR

The school year consists of two quarters of twelve weeks each, commencing September 16, 1913, and closing March 20, 1914. The year is thus arranged so that young men may return to the farm in time for the spring work. A third quarter is required in the spring of the senior year.

Instruction begins promptly at the opening of each quarter and students should be present on registration day and remain until the close of the term. Students will not be received for the work of the first quarter after October 1, except by special permission.

Special classes are arranged for students who are able to attend only the winter term.

FEES AND EXPENSES

Tuition is free to West Virginia students. For students from other states the tuition is $10.00 per term.

A matriculation fee of $5.00 is payable upon entering the school by all students except those holding appointments as cadets.

The contingent fee is $2.00 per term and is payable by all students except those holding appointments as cadets.

All students are required to pay a regular athletic fee of $2.00 per term which entitles them to the use of the gymnasium.

Fees for materials used are charged in some courses involving laboratory work, as stated under those courses.

MILITARY DRILL

All male students will be required to take military drill and military science during the first three years. The announcements of the military requirements will be found on page 228 of the University catalogue for 1912-13.

Women students will be required to take gymnasium work, in place of drill.

ATHLETICS

Students in the School of Agriculture will not be eligible to the University Athletic teams, but they will be encouraged to organize teams of their own to compete with schools of a similar grade.

REQUIREMENTS FOR GRADUATION

1. The completion of the prescribed course.

2. An essay of not less than one thousand words upon a topic connected with agriculture, typewritten on paper of approved size for binding and filed in the library.

3. A practical experience in field work on a farm, as shall appear from reports made from responsible sources, of such a nature in such a form as may be prescribed by the faculty.

A student meeting these requirements for graduation will be given a diploma, certifying that he is a graduate of the School of Agriculture.

Although the School of Agriculture is not planned as a preparatory school, its curriculum has been purposely arranged so that those students who desire to secure a higher education may enter the College of Agriculture. Graduates of the School of Agriculture will be given credit for twelve entrance units for admission to the College of Agriculture, and may be admitted as special students with two entrance conditions. Work done in the School of Agriculture can not be counted as entrance credit in any college in the University except the College of Agriculture.

Many students will probably be able to attend but a year or two. Such students will find the work in agriculture arranged so that they may secure a maximum amount of work in the department in which they are most interested, in the time at their command.

FOUR YEAR CURRICULUM IN AGRICULTURE

First Year

Fall Term			*Winter Term*		
English A,	3		English B,	5	
Botany A,	3	(5)	Botany B,	3	(5)
Drawing A, (free hand)		(5)	Agronomy A, (Farm crops)	3	(5)
Drawing B, (mechanical)		(5)	Horticulture A, (Plant Propagation)	2	(5)
Animal Husbandry A, (Breeds of Live Stock)	3	(3)	Military Science	1	
Military Science	1				

Second Year

English C,	4		Agronomy C, (Soil Fertility)	3	(2½)
Mathematics A, (Arithmetic & Algebra)	5		Chemistry B,	3	(5)
Chemistry A,	3	(5)	Animal Husbandry B, (Live Stock Management)	3	(2½)
Agronomy B, (Soils)	3	(2½)	Horticulture B, (Vegetables & Small Fruits)	4	(2½)
Forge Shop		(5)	or Mathematics B, (Algebra)	5	
Military Science	1		Military Science	1	

Third Year

History A,	4		Farm Management A,	3	(2½)
Wood Shop		(5)	History B, (American History)	4	
English D,	5		Entomology B,	2	(2½)
Entomology A,	3	(5)	German B,	5	
or German A,	5		or Dairying A, (Farm Dairying)	2	(5)
Physiology A,	3	(2½)	and Dairying B, (Dairying Cattle Judging)		(2½)
or Mathematics C, (Plane Geometry)	5		Mathematics D, (Plane Geometry)	5	
			or Veterinary Science A,	3	(2½)

Fourth Year

Fall Term			*Winter Term*			*Spring Term*		
History C,	5		English F,	5		English G,	5	
English E,	5		Horticulture C, (Orchard M'gment)	5	(5)	Poultry Hus.	3	(5)
Poultry Husbandry A,	3	(5)	Botany C, (Plant Diseases)	2	(2½)	Farm M'gmt B, (Rural Economics)	5	
Agronomy D, (Farm Engineering)	3	(5)	Elective Agriculture or German D,	5		Botany D, (Agri. Bacteriology)	3	(5)
*German C,	5					*German E,	5	

THE WINTER SHORT COURSE

The Winter Short Course is arranged for young men who desire to study agriculture during the winter months. The course occupies the winter term (Jan. 6 to March 20, 1914) for two years. The first year is designed to give the student a general knowledge of modern agricultural science. During the second year the student may specialize in horticulture, dairying or animal husbandry. Upon completing the two quarters a Short Course Certificate will be given, signed by the Dean of the College of Agriculture. Students so desiring, may however take either one of the courses if they contemplate attending but one term.

The entrance requirements, fees, etc., are the same as for all students of the School of Agriculture. (See page 178.)

WINTER SHORT COURSE CURRICULA

General Agriculture

	Hours in Classroom	Periods of Practicum
Farm Crops (Agronomy A)	3	2
Live Stock Management and Stock Judging (Animal Husbandry B)	3	1
Farm Mechanics (Agronomy E)	2	1
Plant Propagation (Horticulture A)	2	2
Soil Fertility (Agronomy C)	3	1
or		
Farm Management and Accounts (Farm Management A)	3	1
	13	6

Horticulture

Orchard Management (Horticulture C)	5	2
Vegetables and Small Fruits (Horticulture B)	4	1
Insect Pests (Entomology B)	2	1
Plant Diseases (Botany C)	2	1
Soil Fertility (Agronomy C)	3	1
or		
Farm Management and Accounts (Farm Management A)	3	1
	16	6

Dairy Husbandry

Farm Dairying (Dairying A)	2	2
Dairy Cattle Management (Dairying C)	4	1
Dairy Cattle Judging (Dairying B)		1
Breeds of Live Stock (Animal Husbandry A)	3	
Veterinary Science A	3	1
Soil Fertility (Agronomy C)	3	1
or		
Farm Management and Accounts (Farm Management A)	3	1
	15	6

Animal Husbandry

Beef Cattle Production (Animal Husbandry C)	3	
Sheep and Swine (Animal Husbandry D)	3	
Live Stock Judging (Animal Husbandry E)		2
Breds of Live Stock (Animal Husbandry A)	3	
Veterinary Science A	3	1
Soil Fertility (Agronomy C)	3	1
or		
Farm Management and Accounts, A	3	1
	15	4

THE FARMERS' COURSE.

The Farmers' Course consists of popular lectures, demonstrations, and exercises planned for the benefit of various classes of farmers. The faculty are assisted by men who have been unusually successful, and who are known as experts in the particular line in which they give instruction. The detailed work given is changed from year to year, but the general character of the course remains the same. The course is designed specially for farmers over 21 years of age. This course is becoming increasingly popular each year.

The course for 1914 will be held from Tuesday, January 6, to Friday, January 16. Detailed announcements may be obtained upon application to the Director of Agricultural Extension.

THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION

STAFF

E. DWIGHT SANDERSON, B.Cc.Agr.
Director

BERT HOLMES HITE, M.Sc.
Vice Director and Chemist

WILLIAM EARL RUMSEY, B.Sc.Agr.
Entomologist

NAHUM JAMES GIDDINGS, M.Sc.
Plant Pathologist

HORACE ATWOOD, M.Sc.Agr.
Poultryman

WILLIAM HORACE ALDERMAN, B.Sc.Agr.
Horticulturist

ISAAC SCOTT COOK, Jr., B.Sc.Agr.
Agronomist

PAUL BOMBERGER BENNETCH, B.S.Agr.
Dairy Husbandry

ARTHUR LINCOLN DACY, B.Sc.
Associate Horticulturist

CHARLES AUGUSTUS LUEDER, D.V.M.
Veterinarian

*ORVILLE M. JOHNSON, B.S.Agr.
Farm Management

FRANK BATSON KUNST, A.B.
Assistant Chemist

CHARLES EDWARD WEAKLEY, JR.
Assistant Chemist

DAVID CARLTON NEAL, B.S.
Assistant Plant Pathologist

HUBERT HILL, B.S., M.Sc.
Assistant Chemist

EUGENE CURTIS AUCHTER, B.S.Agr.
Assistant Horticulturist

LUTHER FRANCIS SUTTON, B.S., B.S.Agr.
Assistant Horticulturist

SAMUEL BENTON NUCKOLS, B.S.Agr., A.M.
Assistant Agronomist

RALPH EDWARD HUNT, B.S.Agr.
Assistant in Animal Husbandry

*ALONZO BEECHER BROOKS, B.S.Agr.
Assistant in Forest Pathology

WILLIAM J. WHITE
Auditor

MARTHA A. STEWART
Librarian

*In cooperation with U. S. Department of Agriculture.

THE WORK OF THE STATION

The Experiment Station is a distinct and separate department of the University, and was established by the Board of Regents in 1887, by authority of an act of Congress, known as the Hatch Act, which was passed on the 2nd day of March of that year. Further support was given by an act of Congress known as the Adams act, approved June 30, 1906. The funds for carrying on the operation of the station, with the exception of its earnings, are derived wholly from the national government. Section 2 of the aforesaid act fully states the object and purposes of the Experiment Station as follows:

"That it shall be the object and duty of said experiment station to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject with the remedies for the same; the chemical composition of useful

plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaption and value of grasses and forage plants; the composition and digestibility of the different kinds of foods for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches and experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

Bulletins and annual reports setting forth results of experiments and investigations conducted at the station are published for gratuitous distribution, and will be mailed to any citizen of the state applying for them. The station invites correspondence, suggestions, and advice from farmers and others interested in this work, and all such with reference to bulletins, experiments, or any matter relating to agriculture, will be welcomed and will receive careful and prompt attention. Correspondence should be addressed to the director of the station.

THE COLLEGE OF LAW

THE FACULTY

THOMAS EDWARD HODGES, LL.D., *President*

CHARLES E. HOGG, LL.D., *Dean and Professor of Common Law Pleading, Court Practice and Federal Procedure*

WILLIAM P. WILLEY, A.B., A.M., *Professor of Equity Jurisprudence and Commercial Law, Emeritus*

JAMES RUSSELL TROTTER, A.M., PH.D., *Professor of Law*

GEORGE FITCH WELLS, LL.D., *Professor of Law*

HISTORY

The College of Law was established in 1878. Since then the growth of this department has kept pace with that of the University, of which it is a part, and its attendance is now comparatively large. The College occupies four commodious lecture rooms, a reading room, and a library, to which students have free access.

LAW LIBRARY

The Law Library now contains about fifty-two hundred volumes of well selected books. These consist of the official editions of the United States Supreme Court Reports, and the reports of the states of Massachusetts, New York, Pennsylvania, Virginia and West Virginia complete, and all of the other states to the Reporter System complete with the exceptions of South Carolina, Maine, Rhode Island, Delaware and New Hampshire. The Law Library also contains the American Decisions, American Reports, Corporation Reports Annotated, Lawyers Reports Annotated, old and new series, American Probate Reports Annotated, and a large number of well selected text-books. It is in charge of a competent librarian and is open to the students of the University from eight a. m. to five p. m., and also from seven p. m. to 9 p. m. In addition to this the Dean of the College of Law has placed his own library, consisting of nearly twenty-four hundred volumes, in his lecture room, to which the students have free access. This a well kept, up-to-date private library, containing a large number of text-books, digests, encyclopedias and reports. There is a complete set of the

Reporter System, state and federal, including those contained in the Dean's room and in the Law Library.

Arrangements have been made whereby the use of these two libraries is extended to the lawyers of the state by the payment of a small annual fee, the proceeds thus derived to be expended in the purchase of law books, as the property of the University.

ADMISSION

The requirements for the admission of students who are candidates for the degree of Bachelor of Laws are fifteen units of preparatory work and, in addition, not less than thirty-two hours credit for work in the College of Arts and Sciences or its equivalent. The credits secured must include six hours in rhetoric and composition (English 1 and 2). If the student lacks no more than eight hours of the necessary preparation he may be admitted conditionally and complete his preparation while carrying on the studies of the first year of the law course.

Admission as Special Students. Persons desiring to enter as special students in the College of Law must conform to the regulations of the university concerning special students.

METHODS OF INSTRUCTION

The purpose of the instruction given in the College of Law is to teach the student the general principles and outlines of the common law in all its branches, and its statutory modifications obtaining in West Virginia, and to familiarize him with the law of procedure in this state. A text book is taken as an outline for the lecture and work of the recitation room. The student is given each day a few illustrative cases and is quizzed upon the text in connection with these cases. The work is supplemented by explanatory lectures amplifying the text, making it clear where it is obscure to him, and applying the principles thus deducible to supposed situations and cases, and also setting forth the modifications made in the common law by statute. Additional practical application of the principles and modes of procedure presented in the lecture room is provided for by the work in court practice.

DEGREES

BACHELOR OF LAWS

The degree of Bachelor of Laws will be conferred on any student who has satisfied all the preparatory and collegiate entrance requirements and has received for work in the College of Arts and Sciences and in the College of Law a total of 96 hours, (three years' work) distributed as follows:

(a) In the College of Arts and Sciences, 6 hours in addition to the 32 hours required for entrance to the College of Law. The total of 38 hours which must be offered for entrance and college credit must include at least three hours in economics, at least four hours in argumentation and debate (English 66 and 67), and a total of at least nine hours in history, psychology, logic, and ethics. Students who are required to take military training may include not more than four hours of military science as part of the 38 hours.

(b) In the College of Law, 90 hours as indicated in the curriculum below.

MASTER OF LAWS

Holders of the degrees of Bachelor of Laws from this University or from any other law school of equal rank may be admitted to candidacy for the degree of Master of Laws. So far as applicable the regulations for candidates for the degree of Master of Arts (See page 53) will govern candidates for this degree.

CREDIT TOWARD THE DEGREE OF A.B.

Not more than fifteen hours selected from the following courses may be counted toward the degree of Bachelor of Arts:

Domestic relations
Contracts
Criminal law
Constitutional law
Real property

EXAMINATION FOR ADMISSION TO THE BAR.

It is made the duty of the law faculty according to the laws of the state to examine all applicants for admission to practice law. These examinations are held at the University on the first Wednesday after the first day of January, the first Wednesday in April, and the last Wednesday in September, in each year.

CURRICULUM IN COLLEGE OF LAW

First Year.

First Semester		Second Semester	
Contracts 8:00	5	Real property 8:00	5
Criminal law 9:00, M.W.F.	3	Criminal proceedure 9:00, M.W.F.	3
Domestic relations 10:00, T.Th.F.	3	Bailments and carriers 9:00, T.Th., 10:00, F.	3
Torts I 11:00, M.W.	2	Torts II 11:00, M.W.	2
Agency 11:00, T.Th.	2	Negotiable instruments 11:00, T.Th.	2

Second Year

Evidence 8:00, M.W.F.	3	Partnership 8:00, W.Th.F.	3
Insurance 8:00, T.Th.	2	Equity pleading 9:00 M.T.W.	3
Wills 9:00, M.W.F.	3	Common law pleading 10:00, M.T.Th.F.	4
Sales 9:00, T.Th.	2	Corporations 11:00, M.T.W.	3
Conflict of laws 10:00, T.Th.	2	Equity jurisprudence II 11:00, Th.F.	2
Equity jurisprudence I 11:00, M.W.F.	3		

Third Year

Courts and offices 9:00, M.W.	2	Administrative law 9:00, M.W.F.	3
Court proceedure 9:00, T.Th.F.	3	Suretyship and guaranty 9:00, T., 10:00, F.	2
Legal documents 10:00, T.Th.	2	Extraordinary remedies 9:00, Th.	1
Constitutional law 11:00, M.W.F.	3	Bankruptcy 10:00, T.Th.	2
Damages 11:00, T.Th.	2	Municipal corporations 11:00, M.T.W.	3
Court practice I 2:00, M.W.F.	3	Federal proceedure 11:00, Th.	1
		Court practice II 2:00, M.W.F.	3

COURSES OFFERED IN THE COLLEGE OF LAW

First Year

Contracts. (5 Hrs.) A comprehensive course covering the whole subject of contracts in theory and practice. It deals minutely with all the essential elements in the formation of the contract, as well as the essentials to a valid discharge of its obligations.

First semester; 8:00; Professor Wells, 26 W.

Criminal Law. (3 Hrs.) Definition, nature and punishment of crime; classification of crimes; the mental element in crime; persons capable of committing crimes, and exemptions from responsibility; parties concerned in the commission of crime; overt acts, attempts, solicitations, and conspiracy; offenses against the person; against the habitation; against property; against public health, safety, comfort, and morals; against public justice and authority; against the public peace; against the government and the law of nations; jurisdiction and former jeopardy.

First semester; M. W. F., 9:00; Professor ————

Persons and Domestic Relations. (3 Hrs.) Elementary law; nature of laws in general; rules for construction of statutes. Nature of relative rights; essentials of valid marriage; rights and disabilities of husband and wife; antenuptial and postnuptial settlements; separation and divorce; legitimacy of children and legitimation of bastards; rights of parents and children and their respective duties; guardian and ward; infants, persons non compos mentis and aliens; master and servant and their respective disabilities and rights as to each other and to third persons.

First semester; T. Th. F., 10:00; Professor TROTTER, 28 W.

Torts 1. (2 Hrs.) Principles of liability; state, judicial, and executive acts; quasi judicial acts; parental and quasi parental authority; the remedies for torts; assault and battery, false imprisonment, injuries to family relations, defamation, fraud, malice, deceit, slander of title, malicious prosecution, etc.; duties regarding property, trespass, injuries to reversion, waste, conversion; injuries between tenants in common, nuisance, negligence, etc.; special relations of contract and tort.

First semester; M. W., 11:00; Professor ————

Torts 2. (2 Hrs.) A continuation of Torts 1.

Second semester; M. W., 11:00; Professor ————

Agency. (2 Hrs.) The relation of the principal and agent; the performance of the agent's power and the delegation thereof;

determination of the agency; construction of authority; rights and liabilities between principal and third persons; rights and liabilities between agents and third persons; rights and liabilities between principal and agent.

First semester; T. Th., 11:00; Professor ————

Criminal Procedure. (3 Hrs.) Apprehension of persons and property; preliminary examination, bail, and commitment; the pleadings; the proof; trial and its incidents; proceedings after verdict; evidence.

Second semester; M. W. F., 9:00; Professor ————

Real Property. (5 Hrs.) The nature of real property; the different classes of estates with respect to quantity, quality, time of enjoyment, and number of tenants; executory devises, requisites of a valid deed; methods of acquiring title, title by adverse posession; prescription, and methods and forms of abstracting title to real estate.

Second semester; 8:00; Professor WELLS, 26 W.

Bailments and Carriers. (3 Hrs.) The course covers all the various forms of bailments, but deals specifically with common carriers and their liability under all the conditions in which the passenger or shipper may seek to hold them responsible.

Second semester; T. Th., 9:00; Professor TROTTER, 28 W.

Negotiable Instruments. (2 Hrs.) A study of "The Negotiable Instruments Law" as adopted by West Virginia as a basis; together with a discussion of the principles governing negotiable paper and a demonstration of the practical application of these principles.

Second semester; T. Th., 11:00; Professor ————

Second Year

Evidence. (3 Hrs.) The subject of evidence is considered from two standpoints; first, the scientific method of searching for truth; secondly, the limitation for the production of evidence in a judicial inquiry.

First semester; M. W. F., 8:00; Professor ————

Equity Jurisprudence 1. (3 Hrs.) The origin and development of equity jurisprudence; the fundamental principles and maxims which constitute its foundation; the scope and limitation of its jurisdiction; the three principal divisions of equitable remedies, accident and mistake, fraud, and trusts; special jurisdiction, such as equitable liens, assignments, specific performance of contracts, and fiduciary obligations.

First semester; M. W .F., 11:00; Professor WELLS, 26 W.

Insurance. (2 Hrs.) History, nature and requisites of the contract; parties; insurable interest; the making of the contract; the consideration; consent of the parties; insurance agents and their powers; waiver and estoppel; rights under the policy; standard fire policy; terms of the life policy; marine insurance; accident insurance; guaranty, credit, and liability insurance.

First semester; T. Th., 8:00; Professor ————

Sales. (2 Hrs.) The nature and formalities of the contract of sale; bargain and sale; contract to sell; acceptance and receipts, seller's duties—buyer's rights; buyer's duties—seller's rights.

First semester; T. Th., 9:00; Professor TROTTER, 28 W.

Wills and the Administration of Estates. (3 Hrs.) The instrument—form and contents; execution—signing and attestation; general requisites and validity; mental capacity; undue influence; revocation, revival and republication; probate and contest; construction and operation; legacies and devises; executors and administrators, their powers, duties, liabilities and compensation; distribution of the estates of decedents, including the payment of debts, legacies and distributive shares; settlement of estates.

First semester; M. W. F., 9:00; Professor TROTTER, 28 W.

Conflict of Laws. (2 Hrs.) The situs of the person; status of personal capacity, of marriage, of legitimacy and adoption, of fiduciaries, of chattels and of debts, transfer of personal property, of contracts; the validity of contracts as dependent upon situs, including their interpretation and discharge; the situs of torts and crimes; remedies including marriage and divorce.

Second semester; T. Th., 10:00; Dean HOGG, 27 W.

Equity Jurisprudence 2. (2 Hrs.) Reformation and rescission of contracts for mistake, fraud, misrepresentation, concealment, undue influence, illegality.

Second semester; Th. F., 11:00; Professor WELLS, 26 W.

Equity Pleading. (3 Hrs.) The nature and object of pleading in equity, the practical rules which are recognized by courts of equity in the United States, the modifications which have been made by statute in West Virginia, and the effect of the several pleadings in their relation to each other.

Second semester; M. T. W., 9:00; Dean HOGG, 27 W.

Partnership. (3 Hrs.) Purpose, partners, formation, incidents, rights and duties, powers, liability of firms, liability of partners, action by and against firm, termination and dissolution, partnership assets, accounting, limited partnerships.

Second semester; W. Th. F., 8:00; Professor ————

Corporations. (3 Hrs.) Definition and nature; creation and citizenship; effect of irregular incorporation; relation between the corporation and its promotors; powers and liabilities of corporation; relation to the state; dissolution; membership; management—officers and agents; rights and remedies of creditors; foreign corporations.

Second semester; M. T. W., 11:00; Professor TROTTER, 28 W.

Common Law Pleading. (4 Hrs.) The course covers the entire subject of common law pleading and the modifications produced by statute and the more liberal principles of modern procedure.

Second semester; M. T. Th. F., 10:00; Dean HOGG, 27 W.

Third Year

Constitutional Law. (3 Hrs.) Definition and general principles; the relation of the Federal Government to the states; establishment and amendment; construction and interpretation; the co-ordinate branches of government; federal executive; federal jurisdiction; powers of congress; executive, legislative, and judicial power in the states; the police power; power of taxation; the right of eminent domain; civil rights and their protection; political and public rights; constitutional guaranties in criminal cases; laws impairing the obligations of contracts; retroactive laws.

First semester; M. W. F., 11:00; Professor TROTTER, 28 W.

Damages. (2 Hrs.) Definitions and general principles; compensatory and exemplary damages; bonds; interest; actions against carriers, telephone and telegraph companies; death by wrongful act; injuries to real property; breach of marriage contract.

First semester; T. Th., 11:00; Professor WELLS, 26 W.

Courts and Their Officers. (2 Hrs.) Sources of judicial power; the Supreme Court of Appeals and its jurisdiction, original and appellate; the circuit courts and their jurisdiction, original and appellate; the county courts and their jurisdiction; inferior courts, including attorneys at law, their powers, duties and liabilities. Lectures and individual work in the law library.

First semester; M. W., 9:00; Dean HOGG, 27 W.

Court Procedure. (3 Hrs.) Demurrer, its forms, kinds, office, effect, and the judgment thereon; pleas in abatement, their nature, form, filing, and the judgment thereon; pleas in bar, their nature, those of the general issue and special pleas; the issue, how and when made up, and how tried; abatement, revival and survival of actions; continuances; production of books, papers and documents generally upon the trial of an action.

First semester; T. Th. F., 9:00; Dean HOGG, 27 W.

Bankruptcy. (2 Hrs.) This course will embrace a consideration of the bankruptcy act; courts of bankruptcy and their jurisdiction; the filing of the petition, voluntary and involuntary, and the steps necessary to an adjudication in bankruptcy; appointment of referees, their qualifications, oath of office, number, jurisdiction, duties and compensation; appointment of trustees, their qualifications, duties and compensation; creditors' meetings, and the various other steps usually taken in a bankruptcy case; as well as the usual forms in bankruptcy cases, including the petition, schedules, proof of claims, discharge of bankrupt, etc.

Second semester; T. Th., 10:00; Dean HOGG, 27 W.

Administrative Law. (3 Hrs.) Executive, quasi judicial and quasi legislative functions, administrative discretion, administrative execution, and relief against administrative action.

Second semester; M. W. F., 9:00; Professor TROTTER, 28 W.

Court Practice 1. (3 Hrs.) This course supplies the drill and discipline necessary to prepare the student for the trial tables. He is taught to apply legal remedies according to the common law and chancery systems of practice; to bring suits, draw papers, pleadings, briefs, etc.; to take the various steps incident to bringing a cause to trial, and to try it according to the rules of evidence, including the argument, charge, verdict, motion in arrest of judgment, writ of error. Appellate procedure is also included. The court is organized in all its details in strict conformity to the practice of the regular courts. Six hours attendance weekly is required.

First semester; M. W. F., 2:00; Dean HOGG, 27 W.

Court Practice 2. (3 Hrs.) A continuation of Court Practice 1. Six hours attendance weekly is required.

Second semester; M. W. F., 2:00; Dean HOGG, 27 W.

Legal Documents. (2 Hrs.) The drawing and annotation of affidavits; apprenticeship forms; bonds; assignments; contracts; bills of lading and of sale; deeds of warranty; quit claims, mortgages, deeds of trust, deeds of special commissioners and other persons holding a fiduciary character, and deeds of lease and release; mechanics' liens; notices; options; partnership papers; powers of attorney; promissory notes and other forms of security; protests; proxies; receipts; records and their authentication; wills and codicils thereto; declarations, demurrers and pleas; bills in chancery, and answers thereto; court orders; other forms; examination and abstracting of titles.

First semester; T. Th., 10:00; Dean HOGG, 27 W.

Municipal Corporations. (2 Hrs.) Creation of Municipal corporations; scope of their power, their police and judicial powers; streets and highways; power of eminent domain; taxation; ordinances, officers, and agents; contractual liabilities; securities, limitation of indebtedness; legislative control; liabilities in tort, and duties relating to government affairs.

Second semester; T. W., 11:00; Professor WELLS, 26 W.

Suretyship and Guaranty. (2 Hrs.) Definition and nature; the contract; matters affecting its validity; construction; measure of liability; discharge or release; alteration; rights and remedies of sureties; guaranty elements of contract; construction; what is necessary to bind guarantor; his rights and liabilities; discharge of guarantor.

Second semester; T., 9:00; F., 10:00; Professor ————

Federal Procedure. (1 Hr.) This course will embrace a consideration of the legal and equitable jurisdiction of the federal courts, and procedure therein at law and in equity from the institution of the suit to its termination, as well as many points of practice peculiarly applicable in these courts.

Second semester; Th., 11:00; Dean HOGG, 27 W.

Extraordinary Remedies. (1 Hr.) Mandamus, quo warranto, prohibition, certiorari, and habeas corpus.

Second semester; Th., 9:00; Professor WELLS, 26 W.

THE SCHOOL OF MEDICINE

COURSES FOR MEDICAL STUDENTS AT THE UNIVERSITY

A student who desires to prepare himself for the practice of medicine and who has satisfied the requirements for entrance to the freshman class of the College of Arts and Sciences may enter the University and follow any one of the following programs or plans of work.

(a) He may matriculate in the College of Arts and Sciences as a candidate for the degree of Bachelor of Science. Upon receiving his degree from the University he may enter any standard medical college or school and complete its course.

(b) Or he may matriculate in the College of Arts and Sciences and announce his intention of taking the combined scientific and medical course. After completing two years of academic work in this college he may enter upon the two years course of the School of Medicine of West Virginia University. On the completion of the course of this school as outlined below he will receive the degree of Bachelor of Science. He may then enter a standard medical college, complete its course and receive the degree of Doctor of Medicine. His college and medical course together will in this case usually occupy six years.

(c) Or he may take one year of academic work in the college of Arts and Sciences consisting of courses in physics, chemistry, biology, English, and modern languages and then enter the School of Medicine and complete its course of two years. He will receive no degree from the University but may then enter a standard medical college and complete its course in two years. The time required for this course is thus only five years. It should be noted, however, that a number of the best known medical schools now require fuller preparation than that afforded by this course and the student is strongly urged to take the longer course if possible.

REQUIREMENTS FOR ADMISSION TO THE SCHOOL OF MEDICINE

For admission to the School of Medicine the student must have credit for:

(a) Fifteen units of secondary school work, i.e., the work of a standard four-year high school. This credit may be obtained either by examination or on certificate from a duly accredited secondary school.

(b) Thirty-two hours of academic work done either in the College of Arts and Science of West Virginia University or in another institution of equal grade.

Of the fifteen units of secondary school work required nine are definitely prescribed as follows:

		Units.
English		3
Latin		2
History		1
Mathematics—		
Algebra, 1 unit Plane geometry, 1 unit	Total	2
Science—		
Physics, Chemistry, Botany, or Zoology	Any one of the four	1
Total prescribed		9

The remaining six units must be chosen as electives from the following list:

	Units.
Latin	1 to 2
Greek	2 to 3
German	2 to 3
French	2 to 3
Mathematics—	
Algebra ½ unit Solid geometry, ½ unit Plane Trigonometry ½ unit	½ to 1½

History and Civics	½ to 2
Physics	1
Chemistry	1
Botany	½ to 1
Agriculture	½ to 1
Zoology	½ to 1
Physical Geography	½
Physiology	½
Drawing	½ to 1
Vocational Studies	½ to 2

The thirty-two hours of academic work required must ordinarily be chosen from the following subjects:

	Hrs.
Botany 1 and 2	8
Chemistry 1 and 2	8
Physics 1, 2, 3, and 4	8
Zoology 1 and 2	8
English 1, 2, 26, and 27	10
Modern language (French or German)	10

By the time the student is ready to enter the actual work of the School of Medicine he must have credit for a year's college work in physics, chemistry, and biology (botany and zoology) and must have a reading knowledge of one modern language.

CURRICULUM IN THE SCHOOL OF MEDICINE

First Year—First Semester

Physiology 2	8:00 M. T. W. Th. F.	5	
Osteology (Anat. 1)	9:00 M. T. W. F.	4	
Embryology and neurology (Zoology 6)	10:00-12:00 M. T. Th. F.	4	
Histology (Anat. 12)	2:00-4:30 M. W. F.	3	16

First Year—Second Semester

Physiology 3	8:00 M. T. W. Th. F.	5	
Pharmacology 41	9:00 M.W.F., 10:00 T.W.	4	
Organic Chemistry 3	9:00 T. Th.	2	
Physiology 4	10:00-12:00 M. Th. F.	2	
Dissection (Anat. 13)	2:00-4:30 M.T.W.Th.F.	5	18

Second Year—First Semester

Bacteriology 3	8:00 T.Th., 8 hrs. lab. to be arranged	5	
Pharmacology 3	9:00 M. W. F.	3	
Physical diagnosis 31	9:00 T. Th.	2	
Chemistry 9	10:00-12:00 M.T.W.Th.F.	5	
Pathology (Anat. 21)	2:00-4:30 T. Th.	2	17

Second Year—Second Semester

Pathology (Anat. 22)	8:00-10:00 M. T. W. Th.	4	
Medical jurisprudence 51	8:00 F.	1	
Chemistry 10	10:00-12:00 M.T.W.Th.F.	5	
Dissection (Anat. 14)	2:00-4:30 M.T.W.Th.F.	5	15

COURSES OF INSTRUCTION

PHYSIOLOGY

1. Physiology. (5 Hrs.) Intended for college students who do not care to go into the details of medical physiology. The course covers fully all the preparation needed for teachers' courses. A study of the functions of the different organs of the body, illustrated by demonstrations of human organs and those of the lower animals, with a miscroscopic study of the most important tissues of the body.

First semester: 11:00; 9 W.

2. Physiology. (5 Hrs.) Required of all students taking the first two years in medicine. Lectures, demonstrations, recitations and assigned lessons, covering the muscles, nerves, central nervous system, special senses, blood and lymph.

First semester: 8:00; 9 W.

3. Physiology. (5 Hrs.) Required of all medical students. Continuation of Physiology 2. Organs of circulation; Physical factors; nervous control of organs; vasomotor nerves; respiration; digestion, secretion and nutrition; heat and production; reproduction.,

Second semester: 8:00; 9 W.

4. Physiology. (3 Hrs.) Required of all medical students. Laboratory course to supplement Physiology 2 and 3. Each student makes complete records of each experiment, and these with his note book are examined at the end of the course. Experiments in muscle contraction and conduction of nerves, blood pressure. heart control. pulse and digestion.

Second semester: laboratory. M. Th. F.. 10:00-12:00; 9 W.

PHARMACOLOGY

41. Pharmacology. (3 Hrs.) Required of all medical students. Study of the histology of some of the plants used in medicine; of crude drugs and their preparations; of the physiological actions, toxicology. and therapeutics of drugs. These are illustrated as far as possible by animal experiments.

Second semester: M. W. F.. 9:00; 9 W.

42. Pharmacology. (2 Hrs.) Required of all medical students. Continuation of Pharmacology 1. In this course the student is required to make fluid extracts, tinctures, infusions, pills, ointments, mixtures, and emulsions and to perform experiments showing the action of drugs upon lower animals, the action of anaesthetics and their proper administration.

Second semester: laboratory, T. Th., 10:00-2:00; 9 W.

PHYSICAL DIAGNOSIS

31. Physical Diagnosis. (2 Hrs.) Required of all medical students. A course designed for second year students to teach the proper way to take clinical histories of patients; the different procedures in making a physical examination and the position of the organs of the chest and abdomen, with the methods of location of each.

First semester: Tu. T., 9:00; 9 W.

ANATOMY

11. Osteology. (4 Hrs.) Required of all medical students. Informal talks and quizzes on the bones, joints and ligaments of the human skeleton. A set of bones is furnished each student for study outside of the class room.

First semester: M. T. W. F., 9:00; 8 W.

12. Histology. (3 Hrs.) Required of all medical students. A microscopic study of the normal organs and tissues of the human body and of animals.

First semester;M. W. F., 2:00-4:30; 8 W.

13. Dissection. (5 Hrs.) Required of all students taking the two years in medicine. Careful dissection of the cadaver with reference to the nerves, blood vessels and muscles. The cadaver is divided into three parts, each student dissecting an arm, a leg including the abdominal vicera and the head including the thoracic vicera. A fee of five dollars is charged for each part.

Second semester: laboratory, 2:00-4:30; A. L.

14. Dissection. (5 Hrs.) Required of second year medical students. Continuation of Dissection 3.

Second semester: laboratory, 2:00-4:30; A. L.

21. Pathology. (2 Hrs.) Required of students taking the two years in medicine. The course consists in the gross and microscopic study of diseased tissues, organs, and new growths in the human body. Prerequisite: Histology 2.

First semester: laboratory, Tu. T., 2:00-4:30; 8 W.

22. Pathology. (4 Hrs.) Required of all second year medical students. Continuation of Pathology 1.

Second semester: laboratory, M. Tu. W. T., 8:00-11:00; 8 W.

MEDICAL JURISPRUDENCE

51. Medical Jurisprudence. (1 Hr.) Required of second year medical students. The course is intended to acquaint the student as far as possible with the laws concerning the relation of the physician to his patient, medico-legal inspections, signs, modes and

causes of death, wounds, personal identity, general toxicology, and disposition of human bodies.

Second semester: F., 8:00; 8 W.

BACTERIOLOGY

3. Medical Bacteriology. (5 Hrs.) This is primarily a laboratory course, supplemented by lectures and recitations, on the preparation, sterilization, and use of culture media, followed by a study of the morphology and life activities of selected non-pathogenic and pathogenic bacteria, by means of cultures, inoculation of animals, and the examination of exudates.

First semester: Tu. Th., eight hours of laboratory work.

EMBRYOLOGY AND NEUROLOGY

6. Vertebrate Embryology and Neurology. (4 Hrs.) Cleavage, gastrulation and the formation of the germ layers are studied in the frog and chick; hte development of organs in the chick and pig. These materials are supplemented by sections, dissections, and cleared preparations of human embryos. The last four weeks are devoted to the dissection of the sheep's brain and to the study of dissections of human brains. Reese's Vertebrate Embryology, and Burkholder's Anatomy of the Brain. Prerequisite: course 2 or an equivalent.

First semester: M. T. Th. F., 10:00-12:00; W. 11:00; 50 W.

CHEMISTRY

3. Organic Chemistry. (2 Hrs.) This course is open to students who have completed any standard elementary text in inorganic chemistry, accompanied by individual laboratory work. The course includes the study of the more important organic compounds, especially those which have a wide technical application and those which are familiar in the operations of daily life. Experimental lectures, recitations and laboratory work.

Second semester: T. Th., 9:00; 20 S.

9. Medical Organic Chemistry. (5 Hrs.) Required of medical students. Prerequisite: Chemistry 1, 2 and 3.

First semester: 10:00-12:00.

10. Medical Analysis. (5 Hrs.) Required of medical students. Continuation of Chemistry 9.

Second semester: 10:00-12:00.

NOTE:—A special bulletin giving more detailed information regarding the equipment of the School of Medicine and the contemplated enlargement of its faculty and work may be had on request at the President's office or by application to Professor John W. Simpson, M.D., Dean of the School.

THE SCHOOLS OF MUSIC AND FINE ARTS

STAFF OF INSTRUCTION

LOUIS BLACK — 647 Spruce Street
Director of the School of Music and Head of the Department of Vocal Music

WILLIAM JACKSON LEONARD — 36 University Driveway
Head of the Department of Fine Arts

RUDOLPH WERTIME — South Park
Head of Piano Department

SUSAN MAXWELL MOORE, A.B. — Woman's Hall
Instructor in Music

EVA EMMA HUBBARD — 265 Academy Street
Instructor in Drawing and Painting

GRACE MARTIN SNEE, B.M. — 649 Spruce Street
Instructor on the Piano and Pipe Organ

MARGARET WINTON HORNE — University Driveway
Instructor in Violin

W. A. MESTREZAT — 57 Bridge Street
Assistant in Music (Wind Instruments)

HELEN LOVELAND TREAT — 353 Wilson Avenue
Assistant in Music

FLORA RAY HAYES, A.B. — 480 High Street
Instructor in Theory and History of Music

THE SCHOOL OF MUSIC

BUILDING AND EQUIPMENT

The school occupies the upper floor of Woodburn Hall, which contains well appointed rooms, supplied with pianos and other accessories. A new recital hall, seating 400 people, has been provided for lectures and students' recitals.

Commencement Hall, seating 1,500 people, contains a magnificent three-manual pipe organ, tubular pneumatic—built upon the universal wind-chest system and containing 76 stops and mechanical accessories. This organ, which receives power from an electric motor, is available for practice.

CONCERTS AND RECITALS

FACULTY CONCERTS

Faculty concerts are given at least three times a year, the last of the yearly series being the Commencement concert. All the members of the School of Music Faculty participate in these concerts, though occasionally one member may give an individual recital.

STUDENTS CONCERTS

A student's concert is given each week. These concerts vary in grade from elementary to graduate and post graduate recitals. The object is to afford opportunity for the students to apply in public the proficiency that has been developed in the studio.

CHORAL SOCIETY CONCERTS

A series of choral society concerts, usually three in number, affords students an opportunity not only of singing the choral works of the great masters but also of hearing the solo artists who are engaged.

Usually one of these concerts is given entirely by visiting artists, both instrumental and vocal, the other two being given by the Society assisted by visiting artists.

THE CHORAL SOCIETY

All students of the University who can sing are admitted to the choral society upon payment of fifty cents, the membership fee. For those who are not students the fee is $1.00. These dues admit the members to all concerts of the choral society series.

GENERAL ANNOUNCEMENTS

Students may enter the School of Music at any time, but it is greatly to their interest to enter, as far as possible, at the beginning of the semester.

Students entering within the first two weeks of a semester will be charged for full semester; after that time, for the remainder of the semester and one week additional.

There is no deduction made for lessons missed by students except in case of prolonged illness, when the loss is divided equally between the student and the school.

Students of the School of Music are not allowed to take part in public programs or to join musical organizations without the consent of their respective teachers and the director of the school.

All music students are expected to attend the regular students' recitals, and to take part in them whenever so assigned, and to attend all concerts given under auspices of the University. They are expected to identify themselves with the various organizations of the school, and are required to enter any to which they are assigned by the director.

It is expected that all students will take sufficient work—literary or musical or both—to occupy their entire time.

CREDIT FOR MUSIC ON COLLEGE COURSES

Credit towards the degree of Bachelor of Arts will be given for courses in the theory and the history of music, not to exceed fifteen semester hours.

COURSES OF STUDY

The School of Music offers instruction in the following subjects: Voice, piano, violin, organ, accompanying, chamber music, orchestra, band music, sight-reading, public school music, harmony, counterpoint and history of music. In voice, piano, and violin two courses are offered, one of three years, leading to a teacher's certificate, and one of four years, leading to an artist's diploma.

REQUIREMENTS FOR ADMISSION

No student can be classified in the collegiate courses in music without passing an examination in solfeggio, or demonstrating to the satisfaction of the head of the department the ability to read music of moderate difficulty, and giving evidence of the mastery of the elements of music.

In the preparatory courses, to which children only are admitted, no previous knowledge of music is required.

REQUIREMENTS FOR GRADUATION

GENERAL REQUIREMENTS

Candidates for a Teacher's certificate in any of the three courses mentioned above must have satisfactorily completed two years of high school English, one year of history and one year of a foreign language. They must also have completed courses 1, 2, 3, and 4 in theory of music and courses 5 and 6 in history of music and must have satisfied certain requirements in ensemble.

Candidates for an artist's diploma must meet all the requirements imposed for the teacher's certificate and appear satisfactorily in a graduating recital.

VOICE

Candidates for the teacher's certificate in voice, in addition to the above general requirements, must have satisfactorily completed the three-year course in voice as outlined below, and must possess the ability to perform acceptably selections from the standard oratories and operas. They must also have completed one year of work in each of the modern languages—French German, and Italian, and two years of piano.

Candidates for the artist's diploma in voice must satisfy all the general requirements and the requirements for the teacher's certificate, and must have completed the fourth year's work in voice.

PIANO

Candidates for the teacher's certificate in piano, in addition to the general requirements, must have satisfactorily completed the three-year course outlined below, including compositions covering the classical and romantic periods, and also the lighter works of some modern composers. They must also have satisfactorily completed the course in ensemble playing.

Candidates for the artist's diploma in piano, in addition to the general requirements and the work required for a teacher's certificate, must have completed the four-year course in piano. Particular emphasis is placed upon the graduation recital for students in the piano course.

VIOLIN

Candidates for the teacher's certificate in violin, in addition to the general requirements, must have satisfactorily completed the three-year course in violin music as outlined below, including the concertos of

Viotti, Rode, and Kreutzer, and the lighter works of some modern composer. They must also have some knowledge of piano playing.

Candidates for the artist's diploma, in addition to the general requirements and the work required for the teacher's certificate must complete the for years' work in violin music and give a graduating recital program including one sonata or concerto, one trio or quartet and solos.

NOTE:—Students desiring to become candidates for certificates or diplomas should note that while the above mentioned courses are referred to as three-year and four-year courses no definite period of time can be assigned for their completion. In all cases certificates and diplomas are awarded on the basis of the proficiency acquired, rather than the length of time devoted to the course.

DEPARTMENTS OF INSTRUCTION

Strict adherence to a fixed list of studies is not required. The needs of the individual student are considered and the studies varied accordingly. An idea of the work covered in the different classes may be obtained from the following:

VOICE

Mr. BLACK

The following is a general outline of work for a student taking only technical work—that is, vocal lessons alone:

First Grade—Technique; scales, arpeggios, etc.; vocalises, Panofka and Concone, Vaccai and Marchesi in Italian. Simple songs in Italian and English.

Second Grade—Technique; scales, Lutgen, Concone, Lamperti, Panofka, etc., Vannucini in Italian; songs in Italian and English. Ensemble; duets, trios and quartets.

Third Grade—Technique; Bona, Lutgen, Concone, Bordogni, etc., Arias from standard grand operas and oratories. Ensemble.

Fourth Grade—Technique; Bona, Lamperti, Concone, Aprile, etc., advanced. Oratorio roles, scenes from operas, various songs and arias in preparation for individual recitals. Ensemble.

Sight-Reading

Mr. BLACK

This class meets once each week. In it is offered some preliminary

work in harmony and notation in their particular relation to singing. The "movable do" is used; A modern and easily comprehended text-book is employed.

This work is required of vocal students. No fee is asked of them but to students from other departments a charge of $10.00 a semester is made. This course is recommended as a preliminary to beginners in voice.

PIANO

Mr. WERTIME, Mrs. SNEE, Miss MOORE, and Miss TREAT

The course in this department is intended to meet the varying needs of the individual pupils, with the idea of furnishing a comprehensive, rather than a rigid, inelastic, training in piano-forte technique. While the acquirement of finger dexterity is necessary, the value and importance of the mental training to be obtained from the study of music is emphasized, and the course is expected to make apparent the advantage of a broad musical education.

The course required of candidates for teacher's certificates or artist's diplomas comprises compositions from the following masters: Bach, Haendel, Haydn, Mozart, Beethoven, Schubert, Weber, Mendelssohn, Schumann, Chopin, Henselt, Liszt, Rubenstein, Brahms, Greig, Saint-Saens, Moszkowski.

Preparatory Piano Course

The School of Music offers a well organized preparatory course, presided over by Miss Susan M. Moore. The beginners' class has two sessions a week, one on Saturday morning, and one on Wednesday afternoon, after school hours. Pupils generally remain in this course for two years, at the end of which time it becomes necessary to give them more individual attention. Children in this department are taught sight-reading, transposition, and ensemble playing. They are required to do black-board exercises, and to have a thorough course in ear training.

VIOLIN

Miss HORNE

The mastery of the violin, requiring, as it does, years of specialized effort, tends to restrict students in their musical studies. This course aims to give a thorough training in all the essentials of violin playing, and at the same time to pave the way to a broader, more general culture, which is a part of the true musician's education.

The course required of candidates for the teacher's certificate comprises the Sevcik Violin School; elementary studies and exercises

by Wohlfahrt, Dancla, Hermann, Kayser, etudes by Mazas, Kreutzer, Florillo, Rode; selections from De Beriot, Wieniawski, Viotti, Rode, etc.

The course required of candidates for the artist's diploma comprises, in addition to the above, Bach sonatas, concertos by Mendelssohn, Molique, Spohr, Kreutzer, Bruch, and chamber music, etc.

Preparatory Violin Course

A course in violin instruction is offered for children, corresponding to the courses of a similar nature in the piano department. Children who have had no training in music are admitted to this class.

PIPE ORGAN

Mrs. SNEE

The organ course is intended to provide a thorough and complete education in the work of a church organist and accompanist. Students are required to take some studies on the piano before entering the organ school.

WOOD AND BRASS INSTRUMENTS

Mr. MESTREAZAT

Opportunity is offered in this course to obtain the instruction necessary to fit one to play the various wood-wind and brass instruments used in orchestras and bands.

ENSEMBLE

Miss HORNE

1. **Lessons in Accompanying.** This course is intended to furnish opportunity to advanced students to acquire the art of accompanying songs, violin and cello solos.

2. **Chamber Music.** The study of sonatas, trios and quartettes by Bach, Beethoven, Mozart, Haydn, Mendelssohn, Gade, etc. Open to violinists, 'cellists, pianists and viola players. A preparatory class is also offered, the works to be studied including trios by Reinecke, Bohm, Haydn, and Hellmsberger.

3. **Orchestra Music.** A study of the usual orchestral works and of accompaniments of pianoforte and violin concertos.

CHORUS SINGING

Mr. BLACK

The choral society meets for rehearsal once each week, and affords opportunity to obtain the pleasure and benefit of chorus singing as well as to acquire familiarity with the field of choral work.

THEORY OF MUSIC

Miss HAYES

Fifteen hours of the following courses may be offered for credit in the College of Arts and Sciences.

1. Harmony. (5 Hrs.) Intervals. Scale and melody writing. Construction of the period. Triads, inversions, chord connections in three and four parts, cadences, chord of the seventh, inversions. Modulation.

First semester; 9:00; 47 W.

2. Harmony. (5 Hrs.) Harmonization of melodies employing the use of triads, dominant, diminished and secondary sept-chords, with inversions, in dispersed harmony. Chorals. Chants.

Second semester; 9:00; 47 W.

3. Counterpart. (5 Hrs.) Single melodic line. Narrow and wide leaps. Counterpoint in one, two, three, four and more parts. Syncopation, rests, ties. Diversity of rhythmic movement. Modulations. Motive development. Prerequisite: Harmony 1 and 2.

First semester; 11:00; 47 W.

4. Form and Analysis. (5 Hrs.) Chord reading. Primary forms. Canon in various intervals. Chamber music, oratorios and symphonies. The fugue form. The sonata form. Romantic art forms and modern forms. Orchestration.

Second semester; 11:00; 47 W.

5. History of Music. (4 Hrs.) A general survey of the history of music. Drill in the pronunciation of names. Ancient music. Classic music.

First semester; M. T. Th. F., 10:00; 47 W.

6. History of Music. (4 Hrs.) Music of the nineteenth century and present day topics. Romantic period in composition and opera. Modern period. Recent opera and oratorio. Critics and criticism. Present state of music. Twentieth century composers. Illustrations of periods by instructor and class.

Second semester; M. T. Th. F., 10:00; 47 W.

TUITION PER SEMESTER

The following table shows the rates of tuition for private lessons of thirty minutes in length.

	One	Two	Three per wk.
Voice			
Louis Black	$25.00	$40.00	$55.00
Piano			
Rudolf Wertime	25.00	40.00	55.00
Grace Martin Snee	18.00	28.00	38.00
Susan Maxwell Moore	18.00	28.00	38.00
Helen Loveland Treat	10.00	17.00	
Violin			
Margaret Horne	18.00	28.00	38.00
Pipe Organ			
Grace Martin Snee	25.00	40.00	55.00
Wood and Brass Instruments			
Walter Mestrezat	14.00	20.00	

Ensemble

Accompanying lessons	$12.00 per sem.	
Chamber music	6.00 " "	$10.00 per yr.
Orchestral class	3.00 " "	5.00 " "

Theory

Class daily, recitation one hour

Harmony, Analysis or Counterpoint	$20.00 per sem.
Musical History	16.00 " "

Tuition in other classes is as follows:

Preparatory piano	12.00 " "
Preparatory violin	12.00 " "
Public School Music sight reading	10.00 " "

Piano for practice, one hour per day, will be furnished at $6.00 per semester; two hours per day at $10.00 per semester; three hours per day at $14.00 per semester; four hours per day at $18.00 per semester. Clavier practice, one hour per day, at $5.00 per semester.

Pipe organ practice, 1 hour per day $10.00 per semester.

Students whose work is wholly in the School of Music pay only tuition.

Students of the School of Music who take University work are subject to the usual fees except in the cases of French, German and Italian as required.

THE SCHOOL OF FINE ARTS

EQUIPMENT

The University provides large, well lighted studios, containing drawing stands, easels, etc., and a large collection of casts, and models. Students have access to the University library, which contains a large and carefully selected collection of works on the history and development of the fine arts.

FEES

The regular classes in drawing and the history of art are open without charge to all students of the University, but in the special drawing and painting classes fees are charged, as follows:

For one semester:

Special drawing	$10.00
Painting, all mediums	15.00

Students whose work is entirely in this school, and who take private work only, are not required to pay the usual University fees, but are entitled to all the privileges of the other University students—library, lectures, etc. Fees are payable in advance to the bursar of the University.

THE REGULAR ART COURSE

This course of four years is so planned that the student may acquire the technique of drawing and painting, a general art education, and a degree of æsthetic culture tending to develop the individual powers of expression.

The work of the first year includes light and shade drawing from the antique, study of perspective, sketching from nature, drawings of still life, and study of form carried out in clay modeling. Color studies are introduced in the spring term.

In the second year the drawing is continued from cast in charcoal and crayon, copying the head, mask, and ornament from the antique. Color studies in water-colors and oil are given with the work in black and white.

During the third and fourth years, the student copies the bust and full length figure from the antique, paints from the draped model in the life class, and studies portrait painting and composition or sketching from nature, and landscape painting.

REQUIREMENTS FOR DIPLOMA

To those who complete this course of four years' study, making oil painting their major study and including the history of art, a diploma will be given.

ART COURSES FOR TEACHERS

This course is designed for teachers in public or normal schools. It comprises free-hand drawing of ornament, mask, and head from the antique; study of still life, perspective and mechanical drawing; sketching; study of design; study of color and form developed in water-color painting and clay modeling.

Class lectures are given on the teaching of form and color, and the history of art.

Students should spend two years in pursuing this course; but to suit individual needs, the course may be shortened, and what is most essential will be given in the time available.

CREDIT FOR BACHELOR OF ARTS DEGREE

Credit toward the Degree of Bachelor of Arts will be given for work in Fine Arts not to exceed fifteen hours.

COURSES OF INSTRUCTION

Associate Professor LEONARD

1. Elementary Drawing. (5 Hrs.) The historic forms of art and their development. Lectures, with collateral reading and practice in drawing.

First semester; 9:00; L.

2. Elementary Drawing. (5 Hrs.) A continuation of course 1.

Second semester: 9:00; L.

16. Elementary Drawing. (2 Hrs.) For students in the College of Agriculture only.

First semester; T. Th., 8:00 to 11:00; L.

4. Advanced Drawing. (5 Hrs.) Historic periods of architecture, sculpture, and painting. Lectures, with collateral reading and practice in drawing.

First semester; 10:00; L.

5. Advanced Drawing. (5 Hrs.) A continuation of course 4.
Second semester; 10:00; L.

7. The History of Greek Art. (3 Hrs.) With a consideration of the arts of Egypt, Assyria, and Rome, in their relation to Greek art.
First semester; M. W. F., 8:00; L.

8. The History of Mediaeval and Modern Art. (3 Hrs.) With special consideration of the Renaissance period.
Second semester; M. W. F., 8:00; L.

17. Public School Drawing. (5 Hrs.)
Second semester; 11:00; L.

Mrs. HUBBARD

9. Perspective Drawing. (5 Hrs.) Elementary study of linear perspective; principles applied to geometrical forms and familiar objects. Application to landscape drawing. Development and construction of the arch. Minifie's and Spanton's Perspective.
First semester; hours to be arranged; L.

10. Advanced Perspective Drawing. (5 Hrs.) A continuation of course 9. Isometric drawing; sciography; perspective applied to buildings, use of plan and perspective erection. Reference books, Spanton and Ware.
Second semester; hours to be arranged; L.

12. Oil Painting. Color analysis and combinations; painting from still life, fruits, flowers and draperies; landscape painting; study of the draped model. Hours to be arranged; L.

13. Pastel Painting. The various studies of color and design suitable for expression in this medium; special study for pastel portraits and the draped figure. Hours to be arranged; L.

14. Water Color Painting. Study from still life, landscape and model; design from plant life and conventional forms.
Hours to be arranged; L.

15. Keramic Design. Study of colors and combinations; application of ornament and firing; china fired in the studio kiln.
Hours to be arranged; L.

18. Design and Composition. Study of historic ornament and principles of design. Lectures, collateral reading, and practical work in all mediums. Hours to be arranged; L.

THE SUMMER SCHOOL

FIFTEENTH SESSION, JUNE 23 TO AUGUST 22, 1913.

THE FACULTY

THOMAS EDWARD HODGES, LL.D., *President of the University.*

WAITMAN BARBE, A.M., LITT.D (Director of the Summer School and Professor of English in the University) *English Literature.*

E. A. KIRKPATRICK, PH.D. (Professor of Child-Study in the Massachussetts State Normal School) *Education.*

WM. C. RUEDIGER, PH.D., (Teachers' College, George Washington University) *Education.*

F. A. MILLIDGE, M.A., PH.D. (Professor of Geography and Nature Study, State Normal School, Farmville, Va.) *Geography.*

C. H. CONGDEN, (Author of the Congden Music Primer) *Public School Music.*

ABBY PORTER LELAND, PH.D. (Elementary Supervisor, New York City Public Schools) *Observation Classes, Seventh and Eighth Grades; Principles and Methods of Elementary Teaching.*

FLORENCE R. BONN. A.B., (Baltimore Teachers' College) *Observation Classes, Fourth, Fifth and Sixth Grades.*

MARY BLANCHE SHIMER, (Columbia University) *Observation Classes, First, Second, and Third Grades.*

MYRON A. COBB, B.S. AGR. (Professor of Agricultural Education, State Normal School, Mt. Pleasant, Mich.) *Agriculture.*

GRACE GRIFFIN, A.B. (Supervisor of Physical Training in the Helena, Montana, Public School) *Plays, Games, and Sports for Children; Physical Training for Women.*

ADELE JOSLYN, (Supervisor of Drawing, Buffalo, New York, Public Schools) *Public School Drawing, Handwork, Clay Modeling.*

HERMAN N. MORSE, *Rural Sociology.*

FRIEND E. CLARK, PH.D. (Professor of Chemistry in Centre College, Kentucky) *Chemistry.*

CHAUNCEY W. WAGGONER, A.M., PH.D. (Professor of Physics in the University) *Physics*

JOHN L. SHELDON, PH.D. (Professor of Botany in the University) *Botany; Nature Study.*

FREDERICK W. TRUSCOTT, PH.D. (Professor of German in the University) *German.*

JOHN HARRINGTON COX, A.M. (Professor of English in the University) *English Literature.*

JOHN A. EIESLAND, PH.D. (Professor of Mathematics in the University) *Mathematics*

CHARLES HENRY AMBLER, PH.D. (Professor of History in Randolph-Macon College) *History.*

LLOYD L. FRIEND, A.M. (Professor of Secondary Education in the University) *Education*

EDWIN F. CHURCH, M.S. in M.E. (Professor of Machine Design in the University) *Manual Training.*

EDWARD N. ZERN, B.SC.E.M., (Professor of Mining Engineering in the University) *Practical Mining, and Mine Rescue Work.*

L. J. HANIFAN, A.M., (State Supervisor of Rural Schools) *Rural Education.*

L. D. ARNETT, PH.D. (Librarian of the University) *Library Science.*

SIMEON C. SMITH, A.M. (Associate Professor of Rhetoric in the University) *Rhetoric and Composition.*

A. L. DARBY, A.M. (Associate Professor of Latin and Italian) *Latin; French.*

GEORGE T. HARGITT, PH.D. (Instructor in Zoology in Northwestern University) *Zoology.*

NELLIE MARY BARNETT, B. S., (Supervisor of Household Arts, Public Schools, Bellingham, Wash.) *Home Economics.*

ISAAC S. COOK, B.S.AGR. (Associate Professor of Agronomy in the University) *Agronomy; Soil Surveying and Mapping.*

L. M. PEAIRS, M.S. (Associate Professor of Entomology in the University) *Entomology.*

L. F. SUTTON, B.SC. AGR. (Instructor in Horticulture in the University) *Horticulture.*

O. M. JOHNSON, B.S.AGR. (Associate Professor of Farm Management in the University) *Farm Management.*

R. E. HUNT, B.S.AGR. (Instructor in Animal Husbandry in the University) *Animal Husbandry.*

LOUIS BLACK, (Director of the University School of Music) *Voice.*

MARGARET HORNE (Instructor in Violin in the University) *Violin.*

MRS. LOUIS BLACK, *Advanced Piano, and Vocal Coach.*

GRACE MARTIN SNEE, B.M. (Instructor on Piano and Pipe-organ in the University) *Piano; Pipe Organ.*

FLORA RAY HAYES, A.B., (Instructor in Music in the University) *Theory of Music.*

WILLIAM PHILIP EDMUNDS, M.D. (Instructor in Physical Training in the University) *Physical Training for Men; Athletic Games and Sports.*

GENERAL CHARACTER OF THE SUMMER SCHOOL WORK.

The fifteenth annual session of the Summer School of West Virginia University will begin Monday, June 23, 1913, and continue until Friday, August 22, a period of nine weeks. Most of the credit courses will extend through the entire period, but credit may also be had for six weeks' work in all such courses by students who may be unable to remain for nine weeks.

Most of the professional courses intended especially for teachers will last through the first six weeks only.

The Summer School exists for two main purposes, namely; first, to enable teachers to prepare themselves better both professionally and academically for their work; second, to enable all who desire to do so to work toward their college degree.

In addition to the courses offered hitherto, the coming Summer School will give courses in the subject-matter and methods of geography and in public school music. Instruction in geography will be given by Dr. Millidge, for the past three or four summers instructor in geography in the Summer School of the South at Knoxville, Tenn. The instruction in public school music will be in charge of Professor Congdon of Chicago, author of the Congdon Music Primer, recently adopted for state use in West Virginia.

All classes will meet daily, and no course will last for a shorter period than six weeks, except the course in rural sociology, which is to take the place of the Rural Life Conference, and which is to last for two weeks only.

For the Summer School work the University has engaged Dr. E. A. Kirkpatrick, Professor of Child-study in the Massachusetts Normal School at Fitchburg, one of the most widely known and highly esteemed writers in the country on Child-study and kindred educational subjects; Dean Ruediger of Teachers' College, George Washington University; Dr. Millidge, Dr. Abby Porter Leland, Elementary Supervisor in the Public Schools of New York City; Florence Bonn of Baltimore Teachers' College, and Mary Blanche Shimer of Columbia University, to have charge of the "model" or observation school; Professor Myron A. Cobb of Michigan to teach elementary and high school agriculture; Grace Griffin, supervisor of children's plays, games, etc., in the Helena, Montana, public schools; Adele Joslyn, Supervisor of Drawing in the Buffalo city schools, and others equally capable in their respective subjects.

The regular academic subjects, such as chemistry, physics, botany, German, English literature, English composition, mathematics, history, zoology, Latin, French, and entomology will be offered by the regular professor of these subjects in the University, or by men of similar standing in other institutions.

Last summer for the first time manual training was offered; it will be continued with increased facilities.

SUMMER SCHOOL STUDENTS

The students who attend the Summer School may be divided into three classes.

1. Those who desire credit on their preparatory requirements or towards their college or advanced degrees for the work done.

2. Those who enter regular classes for serious work, but who do not desire credit for it. Such students may or may not take the examinations at the close of the term. Most of them do not.

3. Those who attend the observation classes, the lectures, the musical recitals, etc., but do not enter upon serious or continuous study. Such students are usually persons who feel too much worn out when summer comes to take up difficult work, but who nevertheless desire to get as much profit and pleasure as possible out of the Summer School.

Detailed announcements giving full information concerning all of the courses offered and other features of the Summer School will be issued April 1 and may be had on request. Letters of inquiry will be answered with pleasure. Address the President of the University or the Director of the Summer School.

ADMISSION

There are no requirements for admission to the Summer School unless the student desires University credit for the work to be done. In such case he must satisfy his instructors that he is prepared to take the courses selected. If he desires regular classification he must meet the regular University requirements for admission, a statement of which may be found in the University catalogue.

CREDIT

Entrance or college credit may be had for most of the Summer School courses. The amount of credit will be found stated after each course in the Detailed Announcements, ready about April 1st.

Only regularly matriculated students may use Summer School credits to count toward a degree at West Virginia University, but all others who do the work of the summer school credit courses and take the examination in them may secure statements of their work to be used in any other way they may like. Students taking the non-credit courses will be given certificates, stating that they have attended the classes and done the work of the course. The Registrar will send reports at the end of the term to all matriculated students, and the Director of the Summer School will furnish copies of the following certificate to all others who may desire them:

"This is to certify that..... attended the Summer School of West Virginia University, 1913, from ..... to ..... and completed the following work with the attached results. If definite grades are given, this certificate may be used for credit if presented to secondary schools; otherwise it is only a testimonial."

FEES

The entire fee for everything offered in the Summer School (excepting private instruction in music), is $5.00, whether the student be a resident of West Virginia or of some other State, provided that University credit for summer work is not desired. If University credit for the work is desired, a matriculation fee of $5.00 must be paid, unless the student is already a matriculate of the University.

Students from States other than West Virginia who desire to obtain University credit for the summer work will pay also a tuition fee of $10.00.

If, however, no University credit is desired, the total fee for students from other States, as well as from West Virginia, will be only $5.00.

LIVING ACCOMMODATIONS

For Women

All women students are requested to make Women's Hall, 247 Willey street, headquarters upon their arrival. Miss Moore and her assistants will see that they are provided with living accommodations. Please report to Women's Hall upon arrival, if the committee should fail to meet you at the station. Take street car direct to the Women's Hall.

The Dean of Women has a list of desirable places in Morgantown sufficient to accommodate a large number of young women with both rooms and board at reasonable rates.

For Men

Mr. Frank B. Lewellyn of the Y. M. C. A., has charge of the living arrangements for men. Write to him; he will gladly give information and provide accommodations.

Mr. Philip M. Conley is manager of the Men's Co-operative Hall where a considerable number of men can be accommodated with both room and board at very reasonable rates. Write to him.

The two Christian Associations of the University assist in the work of helping students to find suitable accommodations. Committees of these associations will gladly meet students at the railway station or at the wharf and conduct them to their rooms.

SOME OF THE COURSES

The large number and variety of courses include the following and others:

Child-study
Educational Psychology
School Management
High School Organization and Management
Nature Study
Elementary Agriculture
High School Agriculture
History—three courses
Chemistry—several courses
Physics—several courses
Mathematics—several courses
Latin—two or three courses
French—one or two courses
Children's Plays and Games
Geography—two or three courses

Principles of Education
Principles and Methods of Teaching
Organization and Supervision of Country Schools
Botany—two courses
German—three or four courses
English Literature—several courses
Manual Training
Library Science
Rhetoric and Composition—elementary and advanced
Zoology—two or three courses
Home Economics
Handwork for Children
Public School Music
Public School Drawing
Clay Modeling
Story Telling for Children
Rural Sociology
Observation or "Model" classes—primary grades
Observation or "Model" classes—intermediate grades
Observation or "Model" classes—advanced grades
Entomology
Horticulture
Agronomy
Farm Management
Animal Husbandry
Physical Training for Women
Physical Training for Men
Voice—Individual instruction
Piano—Individual instruction
Violin—Individual instruction
Pipe Organ—Individual instruction
Theory of Music
Practical Mining
Mine Rescue Work.

EDUCATIONAL CONFERENCE

The tenth annual two-days Educational Conference, under the auspices of the University Summer School will be held Friday and Saturday, July 18 and 19, 1913. The general topic for discussion will be "Moral and Civic Education." As usual the leading educators of the state will take part in this discussion, and the proceedings will be published by the University.

COURSE IN RURAL SOCIOLOGY.

Last summer, the first West Virginia Rural Life Conference was held. It lasted for a week, was fairly well attended, and many topics relating to the country life were discussed. The coming summer, instead of a Rural Life Conference, there will be a special course in Rural Sociology for the two weeks from July 7th to July 18th, inclusive—two lectures a day and conferences—by Mr. Hermann N. Morse, a widely known practical investigator in that subject. The country school, the country church, the country social life, and all their relations to one another, and to the welfare of rural communities will be discussed.

This will be a particularly good time for county superintendents and district supervisors to attend, if they can not be present for the entire Summer School. Immediately following the course in Rural Sociology, will be held the annual Educational Conference—July 19-19 —and Mr. Morse will participate in this conference.

FREE MUSIC RECITALS AND MATIN SERVICE

Weekly lecture recitals, under the direction of the School of Music, will be given. Great composers will be briefly discussed and their works interpreted with voice, piano, violin or organ by Professor Black, Miss Horne, and others. These delightful recitals are free to students and the public.

A brief chapel service will precede these music recitals. They will be held every Wednesday at 11 o'clock in Commencement Hall. During that hour no other exercises will be held in any department of the Summer School.

SUMMER SCHOOL IN MINING

Two distinct courses in Mining, extending over a period of six weeks, will be offered in the coming Summer School, each designed for men engaged in mining or for men who have had some experience in mining. The first is for those preparing for state examinations as fire bosses, mine foremen, and mine inspectors. Classes will be formed in mining law, mine gases and explosions, mine ventilation, mine rescue work, drawing and shop work. Students in this course will have the benefit of the lectures in the second course. An examination for official mine positions will be held after the conclusion of this course.

The second course of study is more general and is designed for those who wish to increase their knowledge of the latest, safest and most economical methods in mining operations. It will consist of lectures and experimental and practical demonstrations relating to the most vital subjects connected with coal mining by the leading authorities on these subjects. Regular courses will be given throughout the session in mine gases and explosives, mine economics, mine accidents and preventation, rescue work after explosion, mine gas analysis, electricity, compressed air, and mine rescue work besides special lectures on a variety of topics. Apparatus is being installed for the demonstration work and the Bureau of Mines has promised assistance. Shop work and drawing may be taken by those desiring it. This course will be withdrawn unless a reasonable number apply for it in advance.

All who are interested in either of these courses in Mining should communicate with Dean C. R. Jones of the College of Engineering, Morgantown, W. Va.

THE DIVISION OF MILITARY SCIENCE AND TACTICS

THE FACULTY

THOMAS EDWARD HODGES, LL.D., *President*

DEAS ARCHER, *First Lieutenant 26th U. S. Infantry, Commandant of Cadets and Professor of Military Science and Tactics.*

This institution being one of the beneficiaries of the Act of Congress of 1862, instruction in military tactics is made compulsory for the freshman and sophomore years.

The Department is in charge of an officer of the United States Army, detailed by the War Department, as professor of military science and tactics. The Cadet Corps is inspected once each year by an officer of the General Staff of the Army.

All cadets are required to wear a neat appearing gray uniform at drill. This uniform may be worn with propriety on all occasions. Its cost is about $17.50.

All cadets are divided into two classes, i. e.: State cadets and Volunteer cadets.

State cadets are those who receive appointments under the provisions of the following act of the legislature of the State of West Virginia.

Volunteer cadets are all other cadets belonging to the cadet corps of the University.

Extract from the Military Law, State of West Virginia, January 19, 1903:—"Each member of the Senate shall be entitled to appoint one cadet from his district, on or before the first day of June in the second year of his term, and one cadet on or before the first day of June in the fourth year of his term. Each member of the House of Delegates shall be entitled to appoint one cadet from his county on or before the first day of June next preceding the end of his term. In case a cadetship filled by appointment by any member of the Legislature shall become vacant the member making the appointment, or his successor, shall fill the same by a new appointment within the limits of the time aforesaid. But no Senator or Delegate shall appoint any cadet until he receives a certificate from the President of the University, or the Commandant

of Cadets, giving him notice of his right to do so; and he shall not have the right to exercise such power of appointment as long as two cadets are accredited to himself and his predecessor, either by original appointment or by re-enlistment. All other cadets necessary to make up the full complement of the corps shall be appointed by the regents, in proportion to their number,including vacancies, if any, caused by the failure of any member of the Legislature to fill his appointment. Cadets shall not be under sixteen years of age, and shall not be over twenty-two years of age. Their appointment shall be made upon undoubted evidence of good moral character and sound physical condition. Their term of enlistment shall be four years, but any cadet, at the expiration of his first term, shall be entitled to re-enlist for the further term of two years, upon giving notice of his intention to the commandant of Cadets at least thirty days before the expiration of such term. But not more than fifteen cadets shall be appointed from any Senatorial district, and not more than eight from any one county."

REQUIRED WORK IN MILITARY SCIENCE

The following order was recently adopted by the State Board of Regents:

Ordered that all male students, with the exceptions hereinafter named, enroll themselves in the Department of Military Science and follow diligently the course of instruction provided therein. Proficiency in this course shall be required for graduation.

Practical and theoretical instruction shall be given four hours per week throughout the school year. A credit for one hour shall be given for each semester's work satisfactorily completed. Such credit shall be included in the computation of the student's standing at the end of each semester.

Every student enrolled in the Department of Military Science, whether he holds a cadet appointment or not, shall at the time of his enlistment deposit with the bursar of the University $17.50 to cover the cost of the uniform to be furnished him. This deposit is not to be refunded, but in case a cadet serves longer than two years, he shall at any time after the beginning of his third year of service be furnished a new uniform or such part thereof as the Commandant of Cadets may find that he needs, without cost to him.

The following classes of students shall not be required to enroll themselves in the Military Department but may elect to do so:

(1) All students who are citizens of a foreign country and do not intend to become citiezns of the United States.

(2) All students who at date of entrance in the University are more than twenty-three years of age.

(3) All graduate students.

(4) All students whose studies are entirely in the School of Music or Fine Arts.

(5) All students who are taking only the short course, or the special winter course, or agricultural extension work in the College of Agriculture.

(6) All students who are classified as juniors and seniors (third year and fourth year students) in the various colleges.

(7) All students who are physically unable to perform military duty.

(8) All students who are compelled to seek employment in order to defray expenses while in the University, providing that such employment cannot be arranged so as not to interfere with the drill hour. It is not the intention to force students to drill when to do so would practically compel them to leave the University. On the other hand, students can not be permitted to engage in other occupations which are not necessary for their support and be excused from drill on the ground that such employment occupies the drill hour. In such a case drill shall be regarded the same as any other study.

No cadet exempted from military drill by reason of self support shall be permitted to enroll himself in any student organization other than the regular literary or scientific organizations of the University.

A board, to be known as the Military and Gymnasium Board, shall be composed of the Commandant of Cadets, the Director of Physical Training, and a Surgeon of the Corps of Cadets, designated by the President. This board shall act upon claims for exemption from military service.

Students who claim exemption under any one of the first six cases must, within seven days after their registration in the University, present to the Commandant, in writing, their request accompanied by such evidence as is relied upon to support the request. A failure to make the request within the stated time shall bar the student from claiming exemption.

Students who claim exemption under the seventh or eighth case must within seven days after their registration in the University present to the Commandant of Cadets, in writing, their request accompanied by such evidence as is relied upon to support the request. Applicants for exemption on the ground of physical disability shall be carefully examined by a surgeon of the Corps. A fee of one dollar to be paid to the examining surgeon shall be charged for such examination.

Students exempted under the seventh and eighth cases shall, upon recommendation of the Military and Gymnasium Board, be required to register for such physical training as they can take until they have earned a credit equal to that given for the prescribed military work.

In none of the preceding cases shall a student absent himself until his application has been acted upon.

It shall be the duty of the Commandant to notify the Chairman of the Committee on Classification and Grades whenever the Military and Gymnasium Board exempts a student or recommends that he be required to register for other than military drill.

Whenever the cause for exemption shall no longer exist, it shall be the duty of the student to present himself for drill at the next drill period.

Upon recommendation of the Athletic Board of Control, in writing, the Commandant of Cadets may excuse cadets to take part in athletics. Such cadets shall be excused during the active season only. No cadet shall be excused for practise in more than one class of athletics in any one year.

Students may appeal from the decision of the Commandant of Cadets or the Military and Gymnasium Board, in which case the appeal shall be decided by the Council of Administration.

All cadet officers taking military instruction as an elective shall be, as to their tuition and fees, on the same basis as state cadets.

SPECIAL REWARDS FOR MILITARY EXCELLENCE

The names of the three most distinguished cadets of the graduating class are published annually in the Army Register. One of these three may be designated each year to take the examniation for commission in the Regular Army.

All graduates of the Military Department are eligible, within five years after graduation, to commissions as first lieutenants in the West Virginia National Guard, without examination.

The State Board of Regents offers the following medals as special rewards for excellence in military training:

(1) To the cadet having the best record for drill and discipline, a gold medal; (2) To the cadet having the highest aggregate score at target practice, a silver medal; (3) To the cadet having the second highest aggregate score at target practice, a bronze medal.

ARMORY

The Armory (60 by 120 feet) is used as a drill hall during inclement weather. This building is the home of the cadet corps, and all entertainments given by them are held therein, under the supervision of the Commandent of Cadets.

ADMINISTRATION AND INSTRUCTION

For the purpose of administration and drill the cadet corps is organized as an infantry battalion.

The work in the Military Department is taken in connection with other University work, and requires about four hours each week. The course of instruction is intended to fit all who graduate therein to perform efficiently the duties of officers in the National Guard of West Virginia. The winter months are devoted to theoretical instruction in tactics and other military subejcts, together with practical instruction in drill and in gallery practice.

BAND

A band of thirty-two musicians is authorized by the Board of Regents. Band cadets are volunteer cadets. They receive the same allowances as state cadets and are governed by the same rules and regulations. They are required to be instructed in military drill to include the school of the soldier and of the squad.

INFORMATION FOR APPLICANTS FOR APPOINTMENT TO THE CADET CORPS

1. The applicant must not be under sixteen nor over twenty-two years of age.

2. He must be a bona fide resident of West Virginia.

3. He must be sound physically and of good moral character.

4. He must deposit $17.50 with the bursar of the University to cover the cost of his uniform.

5. He must make an average grade each semester of not less than sixty on a scale of one hundred, in order to hold his appointment.

6. He is allowed free stationery and the use of text-books to the value of $15.00 a year. He pays no matriculation, tuition, or contingent fes to the University. If he is graduated from any department of the University while a member of the cadet corps, he is allowed to retain his text-books.

7. The work of the corps does not interfere with the student's scholastic duties. Cadets may take courses in any of the departments of the University.

8. A young man desiring an appointment should apply to the regent for his county, or to a member of the Legislature representing his county. The counties of the state are divided as follows by the Board of Regents for the purpose of cadet appointments:

REGENT E. W. OGLEBAY, Wheeling, W. Va.
First, Second, and Eleventh Districts. Brooke, Hancock, Ohio, Marion, Tyler, Wetzel, Marion, Monongalia, Taylor.

REGENT J. B. FINLEY, Parkersburg, W. Va.
Third, Tenth, and Twelfth Districts. Pleasants, Ritchie, Wirt, Wood, Braxton, Calhoun, Gilmer, Pocahontas, Webster, Doddridge, Harrison, Lewis.

REGENT G. S. LAIDLEY, Charleston, W. Va.
Seventh, Eighth, and Ninth Districts. Mercer, Monroe, Raleigh, Summers, Boone, Kanawha, Logan, Clay, Fayette, Greenbrier, Nicholas.

REGENT G. A. NORTHCOTT, Huntington, W. Va.
Fourth, Fifth, and Sixth Districts. Jackson, Mason, Wayne, Roane, Cabell, Lincoln, Putnam, McDowell, Mingo, Wyoming.

REGENT M. P. SHAWKEY, Charleston, W. Va.
Thirteenth, Fourteenth, and Fifteenth Districts. Barbour, Pendleton, Randolph, Upshur, Grant, Hardy, Mineral, Preston, Tucker, Berkeley, Hampshire, Jefferson, Morgan.

9. Students who have cadet appointments should upon their arrival at the University present themselves at the office of the Commandant, in the armory, and obtain the necessary information about registering, etc.

10. The number of state cadets allowed by law is 225.

11. Any cadet who is absent without leave for more than ten days will forfeit his appointment, and will be dropped from the rolls. He cannot reenter the university without special permission.

COURSES OF INSTRUCTION

The following courses in Military Science and Tactics are offered, each course requiring four hours practical work or two hours practical work and one recitation per week, for which a credit of one semester hour is given.

1. Military Science. (1 Hr.) (a) Practical: infantry drills, bayonet exercise, gallery practice and setting up drill. (b) Theoretical: recitations in Infantry Drill Regulations, U. S. Army, paragraph 1 to 346, inclusive.

First semester; M. T. W. Th., 12:00; Lieutenant ARCHER, and Cadet Officers, A.

2. Military Science. (1 Hr.) (a) Practical: same as course 1 with addition of guard duty and range practice. (b) Theoretical:

recitations in Infantry Drill Regulations, U. S. Army, paragraphs 708 to 765 inclusive and Manual of Guard Duty.

Second semester; M. T. W. Th., Lieutenant ARCHER, and Cadet Officers, A.

3. Military Science. (1 Hr.) (a) Practical: same as course 1. (b) Theoretical: recitations in Infantry Drill Regulations, U. S. Army, paragraphs 350 to 707, inclusive.

First semester; M. T. W. Th., 12:00; Lieutenant ARCHER, and Cadet Officers, A.

4. Military Science. (1 Hr.) (a) Practical: same as course 2. (b) Theoretical: recitations in Infantry Drill Regulations, U. S. Army, paragraphs 766 to 807, inclusive, and in Small Arm Firing Regulations, U. S. Army.

Second semester; M. T. W. Th., 12:00; Lieutenant ARCHER, and Cadet Officers, A.

5. Military Science. (1 Hr.) (a) Practical: same as course 1. (b) Theoretical: Field Service Regulations, U. S. Army.

First semester; M. T. W. Th., Lieutenant ARCHER, and Cadet Officers, A.

6. Military Science. (1 Hr.) (a) Practical: same as course 2. (b) Theoretical: recitations in Field Service Regulations, U. S. Army.

Second semester; M. T. W. Th., 12:00; Lieutenant ARCHER, and Cadet Officers, A.

7. Military Science. (1 Hr.) (a) Practical: same as course 1. (b) Theoretical: recitations in Marshall's Military Primer.

First semester; M. T. W. Th., Lieutenant ARCHER, and Cadet Officers, A.

8. Military Science. (1 Hr.) (a) Practical: same as course 2. (b) Theoretical: recitations in U. S. Army Regulations and Manual of Courts Martial.

Second semester; M. T. W. Th., 12:00; Lieutenant ARCHER, A.

MILITARY GRADUATES AND DISTINGUISHED CADETS

Reported at Commencement, June, 1912.

The following are announced as distinguished cadets:

Cadet Captain FRANK V. SANDER, Co. "C"
Cadet Captain MILTON D. FISHER, Co. "A"
Cadet Captain EUGENE E. EVANS, Co. "B"

The following named cadets having completed the prescribed course of instruction are announced as graduates of the Department of Military Science and Tactics:

Cadet Captain FRANK V. SANDER, Co. "C."
Cadet Captain MILTON D. FISHER, Co. "A"
Cadet Captain EUGENE E. EVANS, Co. "B"
Cadet Captain LEONARD J. BERNSTEIN, Staff
Cadet Color Sergeant ROBERT L. BATES, Staff
Cadet Sergeant JESSE J. JENKINS, Co. "C"

Upon the decision of the Judges, the cadet colors for the ensuing year were awarded to Company "B"

Upon the decision of the Judges, the sabre offered by the M. C. Lilley & Co., to the Captain of the best drilled company, is awarded to Cadet Captain EUGENE E. EVANS, Co. "B."

The medals offered by the Board of Regents are awarded as follows:

(1) The gold medal for drill and discipline, to Cadet Corpl. EDWIN BJORNSON, Co. "B."

(2) The silver medal for the highest aggregate score at target practice, to Cadet 2" Lieut. JOHN L. STEWART, Co. "A."

(3) The bronze medal for the second highest aggregate score at target practice, to Cadet 2" Lieut. CHARLES S. ROBINSON, Co. "B."

ROSTER OF THE CORPS OF CADETS

Deas Archer,	1st Lieutenant 26th Infantry, Commandant.
George W. May,	Ordnance Sergeant, U. S. A. Retired, Armorer.

FIELD AND STAFF

Charles G. Baker,	Cadet Major
John N. Simpson,	Captain, Surgeon
Neal M. Heflin,	Cadet Captain, Adjutant
Jose D'A. Kirk,	Cadet Quartermaster

Non-Commissioned Staff

Glen F. Williams,	Cadet Sergeant Major
J. French Robinson,	Cadet Quartermaster Sergeant
C. R. Duncan,	Cadet Color Sergeant
Byron Jolliffe,	Cadet Color Sergeant

BAND

Walter A. Mestrezat,	Chief Musician
Leonard L. Finch,	Cadet Principal Musician
E. A. Hamilton,	Cadet Drum Major

Cadet Sergeants

Arthur L. Frye
Richard R. Feller
Edgar F. Heiskell

Cadet Corporals

H. C. Brown
Fillmore Compton
Harry L. Doxsee
Harold B. Marr
Clyde L. Walker

COMPANY "A"

James C. Allen, Cadet Captain
Stephen P. Hoskins, Cadet 1st Lieutenant
Truman M. Martin, Cadet 2nd Lieutenant
Harley L. Crane, Cadet 1st Sergeant

Cadet Sergeants

Christian Sander
Joseph H. Stansberry
Halbrook Easely
J. P. Seckman

Cadet Corporals

Edward D. McGary
William L. Linton
Edward D. Stewart
C. E. Bishop

COMPANY "B"

Charles S. Robinson, Cadet Captain
Martin L. Bonar, Cadet 1st Lieutenant
H. G. Fortney, Cadet 2nd Lieutenant
Irl N. Duling, Cadet 1st Sergeant

Cadet Sergeants

A. R. Groves
R. L. Strickler
R. H. Gist
Edwin Bjornson

Cadet Corporals

Max Barbor
C. W. Wood
H. M. Harper
Joseph Bierer

COMPANY "C"

Lewis G. Burrell, Cadet Captain
David R. Dodd, Cadet 1st Lieutenant
George G. Davis, Cadet 2nd Lieutenant
Joseph S. Miller, Cadet 1st Sergeant

Cadet Sergeants

Earl G. Kaltenbach
James P. Weaver
Joseph P. Dawson
W. R. Sayer

Cadet Corporals

Roy F. Miller	G. H. Bailey
F. L. Lemley	E. C. Smith

Company "D"

John Y. York,	Cadet Captain
John L. Stewart,	Cadet 1st Lieutenant
Orton E. Duling,	Cadet 2nd Lieutenant
Max Wright,	Cadet 1st Sergeant

Cadet Sergeants

Max Wilcoxen	Bradford B. Laidley
Samuel A. Kelly	E. J. Kersting

Cadet Corporals

H. W. Jarrett	L. C. Gibson
A. J. Gibson	L. E. Reynolds

DEGREES DIPLOMAS AND PRIZES.

FORTY-FIFTH ANNUAL COMMENCEMENT, JUNE 19, 1912.

CANDIDATES FOR DEGREES

Master of Arts

JOSEPH FRANKLIN MARSH . . . . . CHARLESTON
A. B., West Virginia University, 1907

Bachelor of Arts

IRENE MARIE ANDRIS . . . . . MORGANTOWN
LEDA CORDELIA ATKESON . . . . . BUFFALO
JENNIE DELAWDER BOUGHNER . . . . . MORGANTOWN
LUCY CLARE CLIFFORD . . . . . CLARKSBURG
EARNEST DANIEL CONAWAY . . . . . ENTERPRISE
GAIL DAVIS . . . . . MORGANTOWN
HELEN MARGARET DEBERRY . . . . . TERRA ALTA
FANNIE EAGAN . . . . . RONCEVERTE
HOWARD FRANKLIN FLESHMAN . . . . . HINTON
ESTHER JEAN GILMORE . . . . . ST. CLOUD
EMILY ELIZABETH HALL . . . . . KEYSER
MARY MANNING HOLROYD . . . . . ATHENS
HARRY CHRISTOPHER HUMPHREYS . . . . ORGAN CAVE
WILLIAM FRENCH HUNT . . . . . MORGANTOWN
FRANK BOWMAN LEWELLYN . . . . . MORGANTOWN
THOMAS ROACH MCMINN . . . . . MORGANTOWN
ROSCOE PARRIOTT POSTEN . . . . . MORGANTOWN
LEOLA MAY SMITH . . . . . MORGANTOWN
SUSAN LOUISE SMITH . . . . . ST. MARYS
CLAUDE CARL SPIKER . . . . . MASONTOWN
MARION ETHEL TAPP . . . . . MORGANTOWN
PAULINE THEAKSTON . . . . . MORGANTOWN
WILLIAM WOODSON TRENT . . . . . DAVIS
RHEA WATSON WARDEN . . . . . GRAFTON
GLADYS MARY WATERS . . . . . MORGANTOWN
HARRY GROVE WHEAT . . . . . DAVIS
WILSON HENRY STOUT WHITE . . . . . MORGANTOWN

Bachelor of Science

Jan Hendrik Berghuis-Krak	The Hague Holland
Leonard Julius Bernstein	Sutton
Lena Mabel Chabter	Ravenswood
John Lee Dunkle	Deer Run
Eugene Everly Evans	Morgantown
Mabel Clara Hodges	Morgantown
June Carey Houston	Morgantown
William Cleveland Lough	Cameron
Clark Francis Pool	Chester
James Harrison Riddle	Wheeling
Frank Vanderslice Sander	Wheeling
Elmer French VanGilder	Fairmont

Master of Laws

George Hutchinson Gunnoe . . . . . Crany
LL.B., West Virginia University, 1911

Bachelor of Laws

Frank Rezin Amos	Fairmont
Robert Lee Bates	Kearneysville
Ernest Roy Bell	Fairmont
Jackson VanBuren Blair, Jr.	West Union
Stanley Rhey Cox	Morgantown
A. B., West Virginia University, 1911	
Charles Duffy Floyd	Glenville
George McDonald Flynn	Charleston
A. B., Lafayette College, 1898	
Charles Roy Foltz	Martinsburg
Joseph Vincent Gibson	Tunnelton
Jerome Venoir Hall	Bucknannon
Grover Foster Hedges	Spencer
Arthur Brown Hodges	Morgantown
A. B., West Virginia University, 1911	
Lory Francis Ice	Smithfield
Jay Berthrand Levy	New Cumberland
Cyrus Biggs VanBibber	Huntington
A. B., West Virginia University, 1909	
Miflin Marsh Watkins	Wheeling
William Seward Weeks	Washington, D. C.

Bachelor of Science in Civil Engineering

CLARK CULBERTSON BURRITT	WASHINGTON, D. C.
THOMAS WILMER CRAWFORD	NEW CUMBERLAND
OTTO DALE ELSON	WELLSBURG
MILTON DEWITT FISHER	MORGANTOWN
WALTER WESLEY GASKINS	FAIRMONT
ROBERT DAVID HENNEN	MORGANTOWN
LOGAN MCDONALD	SYCAMORE
CLYDE CHARLES PUGH	WHEELING
CLAUDE SPRAY TETRICK	ENTERPRISE

Bachelor of Science in Mechanical Engineering

ALEXANDER DEACON BELL	MORGANTOWN
WALTER BERYL CROWL	FAIRMONT
MOSES STARKE DONNALLY	CHARLESTON
FRANK BISHOP FAULKNER	MORGANTOWN
GEORGE WALTER GROW	WILLIAMTOWN
CULLEN GUILE MARTIN	CLARKSBURG
THOMAS CLYDE PITZER	MANNINGTON
SAMUEL HENRY SANGER	SANGER
GEORGE BOWERS VIEWEG	WHEELING

Bachelor of Science in Agriculture

ALONZO BEECHER BROOKS	MORGANTOWN
SAMUEL HOUSTON DADISMAN	GRAFTON
HOMER DAVID GROVES	EARL
EARL WOODDELL SHEETS	LOST CREEK

Doctor of Medicine

ASA WILLIAMS ADKINS	HUNTINGTON
EVERETT ROY COOPER	AUBURN
JOSEPH SHERMAN CRAIG	HOOKERSVILLE
SAMUEL JOHN MORRIS	MORGANTOWN
CECIL OMER POST	JARVISVILLE
GEORGE BONNIE WHEELER	CLAY

Artist's Diploma, Voice

ADELE EMELIA NICHOLS	MORGANTOWN

Certificate in Elocution

ELIZA PEARL HODGES	MORGANTOWN

PRIZES AND HONORS

The Inter-Society Prizes

For the Columbian Society:

Debate—$50.00

FRED BLAINE DEEM, Freshman.....Parkersburg
JAMES HOWARD HICKMAN, Junior.....Harrisville

Oration—$30.00

FRED LEIGH LEMLEY, Sophomore.....Burton

Declamation..$15.00

HUNTER WHITING, Junior.....Glenville

For the Parthenon Society:

Essay—$20.00.

PHILIP MALLORY CONLEY, Sophomore.....Charleston

The Regents' Prize in Composition

ROBERT LEE BATES, Second Year Law.....Kearneysville

The Bryan Prize in Political Science

HARRY LEWIS GRIFFIN, First Year Law .....Belington

The State Tax Commission Prize

TRUMAN MORRIS MARTIN Sophomore.....Newell

The Morris Prize in Civil Engineering

MILTON DEWITT FISHER, Senior..... Morgantown

Phi Beta Kappa

The following seniors in the College of Arts and Sciences were elected members of the Phi Beta Kappa Society:

LEDA CORDELIA ATKESON
FRANK BOWMAN LEWELLYN
GLADYS MARY WATERS
HARRY GROVE WHEAT

LIST OF STUDENTS

STUDENTS ENROLLED IN THE COLLEGES

NOTE:—The following list includes the names of all students enrolled in the various colleges of the University, arranged in alphabetical order. Following each student's name and address are given his class, course of study which he is pursuing, or the degree for which he is a candidate. The word freshman, sophomore, etc., following the student's name indicates his rank on the first day of November, 1912. Students whose names are marked with an asterisk (*) are ranked as freshmen, but are conditioned in one or more preparatory subjects. Students marked as sub-freshman or special students are classified in accordance with the regulations found on pages 26 and 27 of this Catalogue.

Adams, Charles Sisson	Morgantown	Soph. B.S.E.E.
Adams, John Ross	Morgantown	Jr., B.S.E.E
Adams, Isaac Maxwell	Ravenswood	3rd Year Law
Albright, Erbie Clare	Morgantown	Special, A. & S.
Alger, Katherine	Wheeling	Fresh., A.B.
Allen, James Cornwell	St. Marys	Jr.,B.S.M.E.
Allen, Rebecca Rector	Mineral Wells	Fresh., A.B.
Amos, George Merle	Fairmont	Fresh., B.Sc.
Amos, Curt Edgar	Fairmont	3rd Year Law
Andris, Irene Marie	Morgantown	Grad., A. & S.
Arnold, Edna	Weston	Jr., A.B.
Arbenz, George Herman	Wheeling	Sub-Fr.
Arnett, Daisy Caroline	Fairmont	Fr., A.B.
Arnold, Eugene Hill	Elkins	1st Year Law
Ash, Francis Guy	West Union	Sub-Fr.
Ash, Irvin Oda	Middlebourne	Jr., A. B.
Ashburn, Clarence M.	West Union	Fr., B.S.Agr.
Atkeson, Mary Meek	Buffalo	Grad. A. & S.
Ayer, Perie Blanche	Grafton	Fr., A.B.
Ayuso, Romulo Hemeteru	Yabucoa, Puerto Rico	Special
Bachman, Carl George	Wheeling	Sen., A.B.
*Bailey, Garland Howard	Giatto	Fr., B.Sc.
Bailey, Harvey Clarke	Glenville	Fr., A.B.
Baker, Charles George	Morgantown	2nd Year Law
Ballard, Elbert Edmonds	Peterstown	Fr., LL.B.
*Ballou, Henry Cornwell	Cadillac, Mich	Fr., B.S.M.E.
Barber, Maxfield	Charleston	Soph., A.B.

Barnes, Walter Kenneth	Fairmont	1st Year Law
Barnett, Joseph, Jr.	Clarksburg	Jr., A.B.
Barron, Frank John	St. Marys	1st Year Law
Bartlett, Howard Robert	Fairmont	Jun., B. Sc.
Baugher, Edward James	Titusville, Pa.	Sen., B.S.M.E.
Baumgartner, Hugh Homer	Morgantown	Soph., A.B.
Beaumont, Catherine Elizabeth	Morgantown	Soph., B.Sc.
Bell, Bessie Boyd	Glenville	Sen., A.B.
Bent, Xenna Pearle	West Union	Fr., B.Sc.
Berghuis-Krak, Jan Hendrik	The Hague, Holland	Grad. A. & S.
Berisford, Halley Earl	Captina	Fr.,B.Sc.
Bierer, Joseph	Morgantown	Soph.,B.S.C.E.
Bills, Henry Wilson Angelus	Wheeling	1st Year Law
Bishop, Charles Eric	Morgantown	Jr., A.B.
Bishop, Ernest Edward	Morgantown	Sub. Fr.
*Bjornson, Edwin,	Morgantown	Fr., B.S.M.E.
*Blackburn, Wade Francis	Stahlstown, Pa.	Fr., A.B.
Blair, Thomas Jackson	Weston	Soph., B.S.C.E.
Blankenship, Lucien Walker	Huntington	Soph., A.B.
Boggess, John Paul	Clarksburg	Jr., B.Sc.
Boggs, Charles Howard	New Martinsville	Fr., B.S.M.E.
Bonar, Martin Loxley,	Moundsville	Sen., B.Sc.
Booher, Wilford Jackson Wilbur	Moundsville	Soph., A.B.
Boone, William Harry	Ronceverte	Fr., B.Sc.
Bonner, Harrie Russell	Parkersburg	Jr., A.B.
*Bord, Harold Glen,	Grafton	Fr., B.S.E.E.
Boreman, William Russell	Middlebourne	Fr., B.S.M.E.
Boseley, Bruce Hamilton	Keyser	Fr., B.Sc.
Boutwell, Louis Eugene	Morgantown	Sen., A.B.
Bower, Mary Mildred	Morgantown	Fr., A.B.
Boyles, Melville Peter	Philippi	Jr., A.B.
Brake, Hyre Clyde	Auburn	Sen., A.B.
Brannan, Dorsey	Grafton	Fr., B.Sc.Agr.
Brennan, William Joseph	Kingwood	2nd Year Law
Broadwater, Charles Lester	Harrisville	Sen., A.B.
Brooks, Leslie	Buckhannon	Soph., B.S.E.E.
Brown, Howard Condit	Charleston	Jun., B.S.E.E.
Brown, Iris	Morgantown	Jun., A.B.
Brown, Robert Ludington, Jr.	Parkersburg	2nd Year Law
Burdett, Nathan Clarkson	Charleston	2nd Year Law
Burdett, Thomas Swaar	Charleston	Sub-Fr., B.S.C.E.
*Burdett, James Sidney	Grafton	1st Year Law
Burdette, William Alexander	Ona	Sen., B.S.C.E.
Burrell, Lewis Glenn	Weston	Jr., B.S.C.E.
Bush, Edith Gertrude	Grafton	Fr., A.B.
Bush, Jessie Lee	Grafton	Soph., A.B
Cady, Stanton Holmes	Morgantown	Fresh., B.Sc.
Caldwell, James Lewis	Huntington	2nd Year Law
*Campbell, George Ambrose	Charleston	Fr., B.S.Agr.
Carden, David Lamont	Zela	Fr., A.B.
Carden, Stella Lucile	Covington, Va.	Fr., A.B.
Carfer, Archie Boyd	Parkersburg	Jr.,B.S.Agr.
Carney, Albert Carlton	Charleston	Fr., B.S.M.E.

Carney, Florence Alfreda	Charleston	Fr., A.B.
*Carpenter, Lewis Van	Benwood	Fr., B.S.C.E.
Carper, Hunter Edmund	Sutton	Fr., B.S.E.E.
*Casto, Mamie Cowell	Buckhannon	Fr., B.Sc.
Casto, Charles Clayton	Spencer	Jr., B.Sc.
Casto, Edna Lenore	Morgantown	Soph., A.B.
Casto, Ethel Blair	Morgantown	Soph., A.B.
Cather, Carl Henry	Morgantown	Fr., B.S.M.E.
Caulfield, Leo Patrick	Clarksburg	2nd Year Law
Chambers, Vannetta	Martinsburg	Fr., A.B.
Chapman, John Martin	Servia	Fr., A.B.
Childers, Asher Theodore	Salem	Soph. B.Sc.
*Church, Nina	Morgantown	Fr., A.B.
Clayton, Harry Paul	Wheeling	Fr., A.B.
Clayton, Frances Willard	Kingwood	Sub-Fr.
*Coffindaffer, Ernest Wayne	Jane Lew	Fr., B.S.Agr.
Cohen, Charles	Charleston	Soph., LL.B.
Cole, Jeremiah Wilson	Cameron	Jun., A.B.
Coleman, Leo Anthony	Wheeling	Soph., LL.B.
Compton, Ada Blanche	Morgantown	Soph.,A.B.
Compton, Alfred Fillmore	Parkersburg	Fr., B.Sc.
*Conaway, James Lawrence	Barrackville	1st Year Law
Conrad, Bernard Roy	Sand Fork	Soph., A.B.
Conley, Philip Mallory	Charleston	Soph., B.Sc.
Coombs, Wayne Francis	Morgantown	Soph., B.S.C.E.
*Cooper, Willie	Tanner	Fr., A.B.
Cooper, Evelyn Marie	Cameron	Fr., A.B.
Coplin, Lucy May	Cairo	Fr., A.B.
Cottrill, Delford Lee	Normantown	Sen., B.S.Agr.
Covert, Leo D.	Moundsville	Grad. A. & S.
*Cowell, Sylvester Eneix	Point Marion, Pa.	Fr., B.Sc.
Cox, Wayne	Morgantown	Soph., A.B.
Cox, James Carl	Cox's Mills	Fr., A.B.
Crane, Harley Lucius	Terra Alta	Soph., B.S.Agr.
Crane, Nina	Terra Alta	Fr., A.B.
Crawford, Robert Bruce	Norton, Va.	Sub. Fr.
Crawford, Stephen Rowan	Philadelphia, Pa.	3rd Year Law
Creel, George Raymond	Morgantown	Fr., B.Sc.
Creel, Thomas Hardin	Kanawha Station	Sub. Fr.
Crockett, Joseph McGavock	Welch	1st Year Law
Crummett, Mahala Lane	Huntington	Fr., A.B.
Crumine, Norman Ross	Washington, Pa.	Fr., A.B.
*Curry, Percy Howell	Flemington	Fr., A.B.
Curtis, Allen Walker	Sherrard	Soph., A.B.
Dadisman, Andrew Jackson	Grafton	Sen., B.S.Agr.
*Darling, Anna Belle	Morgantown	Fr., A.B.
Davis, Allen Cleveland	Williamson	Soph., A.B.
Davis, Anna Beulah Christine	Morgantown	Sen., A.B.
Davis, Richard Earle	Morgantown	Fr., A.B.
Davis, Orin Hoover	Charleston	Fr., B.Sc.
Davis, George Garrett	Sutton	3rd Year Law
Davis, John Floyd	Newport, Pa.	Fr., B.S.E.E.
Dawson, Joseph Power	Charleston	Soph., B.S.E.M.

*Day, Jeanne Latimer	Warwood	Fr., A.B.
Dean, David McConaughey	Morgantown	Soph., B.S.C.E.
Deem, Fred Blaine	Parkersburg	Soph., LL.B.
Dexter, John	Bay shore, N. Y.	Fr., B.S.Agr.
Diddle, Fred Harrison	Philippi	Soph., A.B.
Dilcher, Henry Stanford	Charleston	Fr., B.S.M.E.
Dille, John Adams	Morgantown	Fr., B.Sc.
Dixon, Czernie Andrew	Alderson	Sub. Fr., B.S.Agr.
Dodd, David Rollin	Hedgesville	Sen., B.S.Agr.
Dodd, Maurice Roy	Hedgesville	Jr., A.B.
Donnally, Edward Thomas	Charleston	Fr., B.Sc.
Dorsey, Henry	Pearl	Jr., B.S.Agr.
Doxsee, Harry LeGrand	Bay Shore, N. Y.	Soph., B.S.C.E.
*Drake, Leslie Giles	Davis	Fr., B.Sc.
Duling, Orten Everett	Morgantown	Soph., A.B.
Duling, Irlet Noel	Morgantown	Fr., A.B.
Duncan, Carl Ray	Uffington	Fr., B.S.C.E.
*Duvall, Frank Clifton	Camden	Fr., A.B.
Easley, Garland Holbrook	Bluefield	Fr., B.S.M.E.
*Edmiston, Andrew, Jr.	Buckhannon	Fr., A.B.
Egbert, Alberta Ruth	Morgantown	Special
Elliott, Anna Naomi	New Martinsville	Jr., B.Sc.
Emery, Blanche Frances	Sistersville	Sen., A.B.
Ewald, Margaret Louise	Grafton	Fr., A.B.
Evans, Sallie	Short Creek	Fr., B.S.
Evans, Joseph Earl	Mt. Savage, Md.	Fr., B.Sc.
Farmer, Oscar Leonard	Savannah, Ga.	Sub. Fr.
Feller, Richard Roeder	Martinsburg	Jr., B.S.C.E.
Felton, Albert	Parsons	Soph., B.Sc.
Ferguson, Harry	Holliday's Cove	Fr., B.S.C.E.
Fernandez, Eugenio	Rio Grande, P. R.	Sen., B.Sc.
Fike, Arthur	Morgantown	Soph., B.Sc.
Finch, Leonard Lloyd	Shinglehouse, Pa.	2nd Year Law
Fine, Reuben	Martinsburg	2nd Year Law
*Fisher Ruth Mary	Morgantown	Fr., A.B.
*Fisher, Gladdine Ada	Morgantown	Fr., A.B.
Fisher, Gladys	Morgantown	Fr., A.B.
Fisher, Margaret	Sutton	Soph., A.B.
Fisher, George Prince	Sutton	Fr., A.B.
Fitch, Estella Alice	Huntington	Soph., A.B.
Fleming, Arlington	Fairmont	Soph., B.Sc.
*Fleming, Walter Wolf	Williamsport, Md.	Fr., B.S.E.E.
Fortney, Hugh Goff	Lumberport	Soph., B.S.M.E.
Francis, Albert Galliton	Scottdale, Pa.	Special, A. & S.
Freudenberger, Elmer May	Charleston	1st Year Law
Frye, Arthur Leslie	Morgantown	Jr., B. Sc.
*Fulcher, Paul Milton	Morgantown	Fr., A.B.
Furbee, Flora Louise	Middlebourne	Fr., A.B.

Gardiner, Mabel Henshaw	Martinsburg	Sen., A.B.
Gibson, Lloyd Camden	West Alexander, Pa.	Soph., B.S.C.E.
Gibson, Alva Jason	Sutton	Soph., A.B.
*Gill, Charles Clifton	Covington, Tenn.	Fr., A.B.
Gist, Russell Henderson	Wellsburg	Soph., B.S.Agr.
Glover, John Franklin	Morgantown	Fr., A.B.
Goodwin, Spencer King	MeMechen	Soph., B.S.C.E.
Gorby, Clyde Otha	Moundsville	Fr., A.B.
Gordon, William Ralph	Wheeling	Fr., B.S.Agr.
Graham, Thomas Edward	Parkersburg	Soph., A.B.
Green, Ethel Averil	Morgantown	Grad. A. & S.
Greenan, Edna Margaret	Moundsville	Fr., A.B.
Greene, Harry Horten	Bridgeport	Jr., B.Sc.Agr.
Greer, Guy Edward	Pikeville, Ky.	Fr., B.S.E.M.
Griffin, Alice Rector	Clarksburg	Soph., B.Sc.
*Griffin, Bertha Alice	Belington	Fr., B.Sc.
Griffith, Luther Oscar	Huntington	Fr., B.S.C.E.
Grose, Sylvester Carson	Sago	Sen., A.B.
Grossman, Morris	Follansbee	Sub. Fr.
*Groves, Artie Russell	Cuzzart	Fr., A.B.
Grow, George Walter	Williamstown	Grad., E.E.
Grubb, Joseph Krause	Parsons	Jr., B.S.C.E.
Guseman, Virginia Ruthe	Morgantown	Fr., A.B.
Guseman, Sadie Ray	Morgantown	Sen., B.Sc.
Hagan, Arthur Michael	Hero, Pa.	Sub. Fr., B.S.C.E.
Hagen, Julian Lamar	Huntington	Fr., A.B.
*Hager, Daniel Erwin	Huntington	1st Year Law
Hale, Ruth Regina	Weston	Soph., A.B.
*Hall, Frederick Arthur	Wheeling	Fr., B.S.
Hall, Margaret	Proctor	Fr., B.Sc.
Hall, Jessie	Morgantown	Fr., A.B.
*Hall, Anderson Wade	Weston	1st Year Law
Hall, Frank	Proctor	Soph., B.Sc.Agr.
Hambrick, Ernest	Athens	Fr., B.Sc.
Hamilton, Dale Hunt	Mannington	Fr., B.Sc.Agr.
*Hamilton, Elvin Andrew	Richwood	Fr., A.B.
Harbert, Guy Morland	Morgantown	Special, C.E.
Hardesty, Charles Howard	Mannington	Fr., B.Sc.
Harm, Lois Grace	Huntington	1st Year Law
Harper, Howard Morrell	Elkins	Soph., B.S.E.E.
Harr, Herbert Milton	Buena	Soph., A.B.
Harrison, Samuel Robertson, Jr.	Clarksburg	Soph., LL.B.
Hartman, Lute Burner	Clarksburg	Fr., A.B.
Hathaway, Sylvester Erwin	Morgantown	Soph., B.Sc.
Haymond, Thomas Paul	Fairmont	Sub. Fr.
Hays, Roy	Friendly	Soph., A.B.
Headlee, Herbert Graden	New Martinsville	Fr., B.S.M.E.
Heflin, Neal Minter	Grafton	Jr., B.S.M.E.
Heiskill, Edgar Frank	Morgantown	Fr., B.Sc.
Herring, Carrie Alice	Kingwood	Fr., B.Sc.
Herring, Eleanor Emma	Kingwood	Sen., A.B.
Herring, Nellie May	Kingwood	Jr., A.B.
Hickman, James Howard	Harrisville	Sen., A.B.

Hiland, Wayman L.	Matoaka	Soph., B.Sc.
Hilborn, Claire Egbert	Kane, Pa.	Grad. A. & S.
Hill, Norma Ruth Barrett	Middlebourne	Fr., B.Sc.
Hill, William Everett	Middlebourne	Fr., B.Sc.
Hite, Evelyn Pratt	Morgantown	Grad. A. & S.
Hodges, Eliza Pearl	Morgantown	Sen., A.B.
Hodges, Georgia Lee Staats	Morgantown	Soph., A.B.
Hodges, Charles Edward	Morgantown	Sen., A.B.
Hodges, Harry Curtis	Keyser	Soph., B.S.M.E.
Hodges, Warren Hampton	Morgantown	Grad. A. & S.
Hoge, Elizabeth Stewart	Waynesburg, Pa.	Sub., Fr.
*Hogg, Harriet Primrose	Wellsburg	Fr., B.Sc.
Hogg, Robert Lynn	Morgantown	Jr., A.B.
Holden, Theodore	Harlin	Fr., B. S.
Holton, Linville Moran	Huntington	Fr., A.B.
Hormell, Duane Couzens	Morgantown	Fr., B.S.E.E.
Hoover, Laurence Grant	Grafton	Jr., A.B.
Hoskins, Stephen Paul	Weston	Jr., B.S.M.E.
Hoult, Ethel Louise	Fairmont	Soph., A.B.
Hubbs, George Emanuel	Moundsville	Soph., A.B.
Hubbs, George	Glen Easton	Fr., B.S.
Huffman, Charles Ray	Fairmont	Fr., B.S.E.E.
Humes, Harry Oliver	Mannington	Jr., B.S.E.E.
Hunt, William French	Morgantown	Grad. A. & S.
Hupp, Edwin Erle	Parkersburg	Soph., B.Sc.Agr.
Hutchinson, Frank Ehlen	Fairmont	Sub. Fr.
Hutchinson, Ralph Brenton	New Martinsville	Fr., A.B.
Hypes, James Lowell	Ronceverte	Fr., A.B.
Ice, Ethel	Farmington	Grad. A. & S.
Jacob, John Jeremiah, Jr.	Short Creek	Soph., B.S.C.E.
Jamison, Fred Mueller	Fairmont	Soph., B.Sc.
Jarrett, Hillard Wesley	Charleston	Soph., B.S.M.E.
Jemison, Lawrence Lee	Middlebourne	Jr., B.S.C.E.
Jennings, Charles Irwin	Morgantown	Fr., B.S.C.E.
John, Lemuel Nimrod, Jr.	Morgantown	Fr., B.Sc.
Johnson, Richard William	Union	Sen., B.Sc.Agr.
*Johnson, Charles Joshua	Williamstown	Fr., B.S.M.E.
*Johnson, Sue Montgomery	Keyser	Fr., A.B.
Jolliffe, Byron	Morgantown	Soph., B.Sc.
Jones, William Henry	Richwood	Fr., B.Sc.Agr.
Kaltenbach, Charles Joseph	Wheeling	Fr., B.S.C.E.
Kaltenbach, Earl G. Lawrence	Wheeling	Jr., B.S.C.E.
Kearney, Katharine	Kearneysville	Special, A. & S.
*Keck, Martin Ellen	Fairview	Fr., A.B.
Keller, Arch Loren	Middlebourne	Jr., B.Sc.
Kelley, Samuel Allen	Morgantown	Jr., B.Sc.
Kendrich, William Henry	Morgantown	Soph., B.Sc.Agr.
Kennedy, James Edward	Boothsville	Sen., A.B.
Kersting, Eugene Josiah	Clarksburg	Soph., B.S.M.E.
Kilgore, Harlie Martin	Morgantown	2nd Year Law

Kimble, Brison Edwin	Hambleton	Fr., A.B.
King, Benjamin Franklin	Morgantown	Sen., LL.B.
Kirk, William Van	Paw Paw	Sub. Fr.
Kirk, Jose de Almeida	Wheeling	Sen., B.S.E.E.
*Kline, Harvey Edgar	Monongah	Fr., B.S.M.E.
*Knapp, John Oliver	Morgantown	Fr., B.S.E.E.
Knight, Ernest Evert	Morgantown	Soph., A.B.
Koon, Cline Morgan	Monongah	Soph., B.Sc.
Kumler, Louise Hutcheson	Carmichaels, Pa.	Jr., A.B.
Kumler, Katharine Walter	Carmichaels, Pa.	Sen., A.B.
Laidley, Bradford Beuhring	Charleston	Soph., B.Sc.
Lambert, Oscar Doane	Red Creek	Fr., A.B.
Lawrence, Linwood Theodore	Morgantown	Soph., B.Sc.
Lawton, Ophelia Florence	Elkins	Fr., A.B.
Lawyer, Herbert Randolph	Berkeley Springs	Sub. Fr., B.S.M.E.
Leatherwood, Carl Paxton	Wheeling	Special Law
Lemley, Fred Leigh	Burton	Jr., A.B.
*Leu, Raymond Hansford	New Martinsville	Fr., B.Sc.
Lewellyn, Frank Bowman	Morgantown	Grad. A. & S.
Lewis, Eunice	Buckhannon	Special,A. & S.
Lewis, Robert Cleveland	Buckhannon	Sub. Fr.
Lewis, Anna	Mason	Soph., A.B.
Linn, John Hamilton	Charleston	Special Law
Linton, Lloyd William	Wellsburg	Soph., B.Sc.
Liter, Bess McVey	Point Pleasant	Jr., A.B.
Lively, Elsey L.	Roseville	Sen., B.S.Agr.
Lively, James Prince	Morgantown	Fr., B.S.E.E.
Lively, William Thompson	Morgantown	2nd Year Law
Madigan, Frank	Morgantown	Fr., B.S.E.E.
MacRae, John Alexander	Morgantown	Sen,, A.B.
*Mahan, Charles Edgar, Jr.	Belva	1st Year Law
Manear, Lillian Ruth	Morgantown	Fr., A.B.
Manley, Percy Cyrus	Monongah	Soph., B.S.Agr.
Marr, Harold Burl	Mannington	Jr., A.B.
Marsh, Nancy Emory	Joseph's Mills	Fr., A.B.
Marshall, Anna Mary	Connellsville, Pa.	Fr., B.Sc.
Marshall, Ralph Sherman	Connellsville, Pa.	Fr., B.Sc.
Martin, Truman Morris	Newell	Fr., A.B.
Mason, Robert Hubbard	Woodhull, N. Y.	Sub. Fr.
Matheson, Earle Scarborough	Wadesboro, N. C.	Sub. Fr.
Mattson, Ellen	Morgantown	Fr., A.B.
May, John Dorilas	Dovesville, Va.	Jr., A.B.
McClung, Keener	Alderson	Fr., A.B.
McCreery, Clara Belle	Morgantown	Fr., B.Sc.
McConnell, Nell Margaret	Sherrard	Sen., B.Sc.
McCrum, Harold Bernard	Aurora	Jr., LL.B.
McCulloch, Mary	Point Pleasant	Soph., A.B.
*McCune, Martha Dawson	Clarksburg	Fr., A. B.
McCuskey, Frank Crim	McMechen	Soph., B.Sc.
McDaniel, Leon Sayre	Kingwood	Fr., B.Sc.Agr.
McDonald, Brown	Sycamore	Jr., A.B.
*McDowell, Charles Wesl	Wabash	Fr., B.S.C.E.

McGarry, Edmund Daniels	Shenandoah Jct.	Jr., A.B.
McIntyre, Dennis Selkirk	Hepzibah	2nd Year Law
McLennan, Florence	Morgantown	Special, A. & S.
McMillen, Herbert	Masontown	Soph., B.Sc
McMinn, Thomas Roach	Morgantown	1st Year Law
McMinn, Vaun Davis	Jefferson, Pa.	Sen., A.B.
McNash, Mary Ellen	Wheeling	Fr., A.B.
McNemar, William Vernon	Lahmansville	Sen., A.B.
McWhorter, Louis Edwin	Charleston	Fr., A.B.
Mealy, Frederick Earle	Morgantown	Sen., B.S.C.E.
Means, Guy Goffe	Grafton	Jr., B.S.Agr.
Meredith, Kate	Morgantown	Fr., A. B.
Merritt, Harold Warner	Lawton	Fr., B.S.M.E.
*Michael, Margaret May	Keyser	Fr., A.B.
Miller, Joseph Shields	New Cumberland	Soph., B.S.C.E.
Miller, Percia Eugene	Wheeling	1st Year Law
Miller, Roy Frank	New Martinsville	Soph., B.Sc.
Miller, Alexander	Morgantown	Sen., A.B.
Miller, Earl Lazier	Morgantown	Soph., B.S.C.E.
Mitchell, Spurgeon Pomeroy	Morgantown	Special Law
Mitchell, John Barton	Morgantown	Special, B.S.M.E.
Mitchell, Elsie Elizabeth	Monessen, Pa.	Fr., A.B.
Mohler, Daniel Nathan	St. Albans	Soph., LL.B.
Moon, Emily Elizabeth	Morgantown	Fr., B.Sc.
Montgomery, Allen Guy	West Liberty	Jr., B.Sc.
Moore, Susan Maxwell	Morgantown	Grad., A. & S.
Morgan, Frederick Bruce	Ravenswood	2nd Year Law
Morris, Margaret Elizabeth	Cumberland, Md.	Soph., B.Sc.
Morris, Samuel John	Morgantown	Sen., B.Sc.
*Morton, Everett Victor	Webster Springs	Fr., A.B.
Mossman, Rolland Clyde	Huntington	Fr.,LL.B.
Mosteller, Georgie Fay	Clarksburg	Fr., A.B.
Muldoon, Harry Ross	Morgantown	Fr., B.S.C.E.
Muldoon, Ralph Wickcliffe	Morgantown	Fr., B.Sc.Agr.
*Musgrave, Pauline	Clarksburg	Fr., B.Sc.
Musgrove, Grover Cleveland	Fairmont	Soph., B.S.Agr.
Neff, Hazel Evelyn	Mt. Savage, Md.	Fr., B.Sc.
Nefflen, Myra May	Keyser	Fr., A.B.
*Nelson, Max Carlton	Ronceverte	Fr., B.S.E.E.
*Nelson, Roy Ezekiel	Independence	Fr., B.S.C.E.
*Newman, Dora Lee	Glendale	Fr., A.B.
*Niedermyer, John William	Benwood	Fr., B.Sc.
Nicholson, Gillespie Blaine	Morgantown	Fr., A.B.
Nihoof, Frank McCormick	Boomer	Fr., B.Sc.
Nuzum, Callie	Bridgeport	Fr., B.Sc.
Osborn, George Morris	Clarksburg	Soph., B.S.C.E.
Otto, Julia Elizabeth	Wheeling	Fr., A.B.
Parrish, Ada Grace	Mannington	Fr., A.B.
Patterson, James Howard	Sutton	Jr., A.B.
Pedicord, Harry Lewis	Benwood	Soph., A.B.
Peoples, Guy	Cameron	Soph., A.B.

Pepper, Wade	Flemington	Sub. Fr.
Pharr, Percy Paul	Gap Mills	Sub. Fr.
Phillips, George Francis	Belington	Jr. B.Sc.
Pickenpaugh, Beulah Frank	Morgantown	Sen., A.B.
*Polley, William Albert	Benwood	Fr., A.B.
Portman, George Henry	Morgantown	3rd Year Law
Posten, Roscoe Parriott	Morgantown	1st Year Law
*Price, John Louis	Martinsburg	Fr., A.B.
Prickett, Clarence James	Fairmont	Sen., B.Sc.
Purinton, Helen Elizabeth	Morgantown	Sen., A.B.
Pyle, Frank James	Morgantown	Soph., A.B.
Quirk, Robert Emmett	Mannington	Soph., B.Sc.
Race, James Stuart	Fairmont	Soph., B.Sc.
*Raemsch, Wallace Paul	Elkins	Fr., B.S.E.E.
Rahl, Marvin Edward	Greensburg, Pa.	Fr., B.S.C.E.
Randolph, Charles Archie	Manitowoc, Wis.	Sub. Fr., B.S.C.E.
Reed, Bessie Jane	West Alexander, Pa.	Sen., A.B.
Reed, Robert Sidney	Boothsville	2nd Year Law
Reed, Cora Elizabeth	West Alexander, Pa.	Fr., A.B.
Reger, Austin Clyde	Academy	Fr., B.S.Agr.
*Reid, Roswell Schell	Star City	Fr., B.S.C.E.
*Reiner, Sara May	Morgantown	Fr., B.Sc.
Rentsch, George Daniel, Jr.	Pleasant Valley	Sub. Fr., Agr.
Reynolds, Lynden Eugene	Grape Island	Soph., B.S.Agr.
Richardson, Edwin Van	Shinnston	Soph., B.S.Agr.
Rigg, John Melvin	Wayne	Special Law
*Riley, James Breinig	Wheeling	Fr., A.B.
Robinson, Charles Stillman	Uniontown, Pa.	Sen., A.B.
Robinson, Harold Lee	Uniontown, Pa.	Soph., B.S.C.E.
Robinson, J. French	Elizabeth	Soph., B.S.C.E.
Rohr, Harley Downton	Alum Bridge	Fr., B.Sc.
Rohrbough, Olive	Beverly	Fr., A.B.
Rokos, Marcalus	Morgantown	Soph., B.S.M.E.
Romine, James Earl	West Milford	Fr., B.Sc.Agr.
Ross, Nellie May	Hedgesville	Jr., B.Sc.
*Rossuck, Hiram Newman	Bay Shore, N. Y.	1st Year Law
Royce, Polly Davis	East Cleveland, O.	Soph., A.B.
*Rusk, James Paul	Charleston	Fr., B.Sc.
Ryan, Lonnie Watterson	Morgantown	Grad., A. & S.
Sander, Christian, Jr.	Wheeling	Jr., B.S.E.E.
Sander, Frank Vanderslice	Wheeling	Grad., A. & S.
Savage, Eva LaVerne	Parkersburg	Fr., B.Sc.
Savage, Fred Cameron	Charleston	Soph., B.S.M.E.
*Savage, James Allen	Charleston	Fr., B.Sc.
Sayre, Watson Russell	Evans	Soph., B.Sc.
Schaffer, Wilhelm	Charleston	Soph., B.S.E.E.
Schenck, Walter Pattison	Connellsville, Pa.	2nd Year Law
Schmidt, Carl Oscar	Wheeling	Grad. Law
Schramm, Henry Clyde	Piedmont	Soph., B.S.E.E.
Scott, Pearl	Pennsboro	Soph., A.B.

Seckman, John Randolph	Belmont	Soph., B.S.E.E.
*Sevy, Clark Russell	Charleston	Fr., A.B.
Shanklin, John Andrew	Charleston	Soph., B.S.M.E.
Shawmon, Edgar Omer	Masontown, Pa.	Sub. Fr.
Sheets, Goldie	Morgantown	Grad., A. & S.
Sheets, Lucie Wood	Wellsburg	Jr., A.B.
Shriver, Forest Oral	Morgantown	Fr., B.S.M.E.
Shriver, Verella May	Morgantown	Sub. Fr.
Shroyer, Andrew Frederick	Philippi	Soph., A.B.
Shughrou, James Leo	Ronceverte	Fr., B.S.C.E.
Shunk, Ivan Vaughan Detweiler	Morgantown	Sen., A. B.
*Shunk, Ursula Cotta	Morgantown	Fr., A.B.
Shurtleff, Oliver	Fairmont	Soph., A.B.
Sinsell, Charles Arthur, Jr.	Grafton	Fr., B.Sc.
Sivey, William Mount	Morgantown	Sen., B.Sc.Agr.
Skinner, Dean Cook	Morgantown	Jr., B.S.E.E.
Smart, Frankie Marie	Montgomery	Fr., A. B.
*Smell, Opal Marguerite	Morgantown	Fr., B. Sc.
Smith, Edith Scott	Morgantown	Sen., A.B.
Smith, Vivian Lloyd	Morgantown	Soph., B.S.C.E.
Smith, Jett Lambert	Morgantown	Soph., B.Sc.Agr.
Smith, Everett Clerc, Jr.	Ravenswood	Sen., B.S.C.E.
Smith, Fred Manning	Morgantown	Jr., A.B.
Smith, Ajax Telemon	Princeton	3rd Year Law
Smith, Carlyle Rector	Parkersburg	Fr., A.B.
*Smith, Edward Conrad	Weston	Fr., A. B.
Smith, Ida Wells	St. Marys	Fr., A.B.
Snider, Clifford Raymond	Spencer	Soph., A.B.
Snodgrass, Ottis Rymer	Morgantown	Special, A. & S.
Snyder, Vena Jane	Morgantown	Special, A. & S.
Spangler, Robert Clifton	Morgantown	Jr., A.B.
Spiker, Elma Etta	Masontown	Fr., A.B.
Stanard, Olive Huffman	Enon	Soph., B.Sc.Agr.
*Stansberry, Joseph Herschel	Romney	Fr., B.Sc.
Starbuck, William Henry	Morgantown	Sen., B. S.E.E.
Starkey, Lawrence Vincent	Ravenswood	Soph., B.S.Agr.
Stealey, Louise	Clarksburg	Sen., A.B.
Stealey, Mansfield Hamond	Middlebourne	Fr., B.Sc.Agr.
Steele, Harriet Effie	Newburg	Sen., B.Sc.
Steele, Mary Pearl	Morgantown	Fr., B.Sc.
Stein, Julius Caesar	South Bend, Ind.	Fr., A.B.
Steorts, Aristotle	Keyser	Fr., B.S.C.E.
Stewart, Allen Edward	Morgantown	Soph., B.Sc.Agr.
Stewart, Edmond David, Jr.,	New Cumberland	Soph., A.B.
Stewart, John Lawrence	Morgantown	Jr., B.Sc.
Stewart, Melville	Glendale	Soph., A.B.
Stine, Harold Blaine	Charleston	Fr., B.Sc.
Stoops, Lowry McElvaine	Benwood	Fr., B.Sc.
Strickler, Robert Mann, Jr.	Morgantown	Jr., A.B.
*Strickler, William Blake	Fairmont	Fr., B.Sc.
*Stuckey, Harry Jeremiah	Hedgesville	Fr., A.B.
*Sturgiss, Anna Gans	Morgantown	Fr., A.B.
Sullivan, John	Huntington	1st Year Law
Sutton, William Wallace	Reedsville	Soph., A.B.

Swann, Walter Clifford	Huntington	Fr., B.Sc.
Sydenstricker, Carl Raymond	Morgantown	Soph., B.S.M.E.
Sydenstricker, Lawrence Elbert	Morgantown	Fr., B.S.M.E.
Sydenstricker, Harry Sydney	Morgantown	Jr., B.Sc.Agr.
Taylor, Roscoe Shirley	Morgantown	Jr., B.Sc.Agr.
Taylor, Donald Clay	Morgantown	Fr., B.S.E.E.
Taylor, George Edmond	Morgansville	Sen., B.S.C.E.
Teter, Charles Wilson	Philippi	Jr., A.B.
Teter, Dwight Hall	Philippi	Jr., A.B.
Thacher, William Reynol's	Morgantown	Grad., A. & S.
Thomas, Raymond Leonard	Youngstown, Ohio	2nd Year Law
*Thompson, James	Morgantown	Fr., B.Sc.
*Timmons, Daisy Ella	Morgantown	Fr., A.B.
*Trail, Grover Cleveland	Beckley	1st Year Law
Toothman, Harry Franklin	Barrackville	Soph., A.B.
Trotter, Charles Henry	Washington, D. C.	Fr., B.S.C.E.
Tucker, Mary Esther	Cassville	Sub. Fr.
Tuckwiller, Eugene Anthony	Lewisburg	Jr., B. Sc.Agr.
Tuckwiller, Ross Herman	Lewisburg	Fr., B.Sc.Agr.
*Turley, William Campbell	Mann	Fr., A.B.
Turner, Bird Margaret	Moundsville	Jr., A.B.
Tuttle, Helen	Fairmont	Fr., A.B.
Vance, Walter	Roaring	Fr., A.B.
Van Devender, Mary	Spencer	Fr., B.Sc.
Vandervort, John Paul	Morgantown	Sen., B.S.Agr.
Vawter, Eugene Raymond	Ansted	Fr., A.B.
Wagner, Enola	Grafton	Fr., A.B.
*Walker, Harry S.	Winona	1st Year Law
Walker, Clyde LeGuage	Fayetteville	Soph., B.S.E.E.
Walkup, Homer Allen Lepps	Falling Springs	Sen., B. Sc.
Walters, Ota Gertrude	Morgantown	Jun., B.Sc.
Warden, Paul Polley	Grafton	Fr., A.B.
Watkins, Wilbur Whally	Wheeling	Special Law
Weaver, Georgie McIntire	Berkeley Springs	1st Year Law
Weaver, James Plummer	Morgantown	Fr., B.Sc.
Weaver, Sabina Olive	Morgantown	Fr., A.B.
Weeks, William Seward	Washington, D. C.	Grad. Law,
Weimer, Bernal Robinson	Port Royal, Pa.	Fr., A.B.
Welch, Iva Mae	Terra Alta	Fr., A.B.
Wells, Clarence Floyd	Middlebourne	Fr., B. Sc.
Weltner, Fred Paul	Brandonville	Soph., B.Sc.
West, Louis Barnes	Summersville	Special Law
Whelan, Joseph Morton	Bay Shore, N. Y.	Fr., B.S.E.E.
White, Ada Miriam	Grafton	Fr., A.B.
White, Horace Laban	Spencer	Grad., A. & S.
White, Janie Ruff	Lewisburg	Fr., B.Sc.
Whiting, Charles Samuel	Glenville	Fr., B.S.
Whiting, Hunter	Glenville	Sen., A.B.
Wiestling, Sara Herr	Wheeling	Soph., A.B.
Wilcoxen, Max	Huntington	Soph., B.S.E.E.

Wilkin, James Ray	New Cumberland	Soph., LL.B.
Wilkinson, Joseph Emory	Hamlin	2nd Year Law
Wilkinson, Joseph Edward	Princeton	Soph., A.B.
Williams, Glenn Foster	Clarksburg	2nd Year Law
Williams, Edgar	Morgantown	Sen., A.B.
Williams, Forest Grey	Charleston	Sub. Fr.
Wilson, Adda Virginia	Sistersville	Jun., A.B.
Wilson, Chape	Academy	Soph., A.B.
Wilson, Stanley Bruce	Moundsville	Jr., A.B.
Wise, John	Charleston	Soph., B.S.M.E.
Wood, Cecil William	Hedgesville	Fr., A.B.
Woodford, Alberta Louise	Morgantown	Sen., A.B.
Woodford, Ina Juanita	Morgantown	Fr., A.B.
*Woods, Ralph Davis	Harrisville	1st Year Law
Woodyard, Edward Douglass	Spencer	Sub. Fr.
Woodyard, William	Spencer	Sub. Fr.
Wright, Max	Ceredo	Soph., A.B.
York, John, Jr.	Kenova	Sen., B.Sc.
*Young, William Henry	Union	Fr., B. S.C. E.
Zinn, Roy Brown	Harrisville	Special Law

STUDENTS ENROLLED IN THE SCHOOL

Alger, Olive Mae	Hambleton	Summer School
Alderson, Jennette Hamilton	Summersville	Summer School
Alderson, Anna Mary	Summersville	Summer School
Ammons, Nellie	Rice's Landing, Pa.	Summer School
Ammons, Nella Opal	Mannington	Summer School
Anderson, Joseph Embury	Cowen	Summer School
Anderson, Isabella,	Parkersburg	Summer School
Arbogast, Gayle	Morgantown	Music
Arnold, Nelle	Weston	Summer School
Auman, Virginia Effa	Terra Alta	Summer School
Bailey, Nelle Marella	Weston	Summer School
Baker, Grace Juliette	Morgantown	Art
Baker, Marguerite	Morgantown	Music
Baldwin, Mary Elizabeth	Moundsville	Summer School
Barber, Lucy	Charleston	Summer School
Barber, Sarah Couch	Charleston	Summer School
Barns, Bernie Hodges	Morgantown	Summer School
Batten, Beryl	Morgantown	Music
Batten, Ruth	Morgantown	Music
Beamer, Jennie Lee	Roanoke, Va.	Summer School
Beard, Henry Washington	Academy	Summer School
Beaumont, Laura J.	Morgantown	Night Class
Beaumont, John Herbert	Morgantown	Music
Beckett, Earnest Clyde	Morgantown	Music
Behrens, Augusta Cardina	Wheeling	Summer School
Beltz, Jennie Cecelia	Wheeling	Summer School
Beltzhoover, Lucie Adele	Shepherdstown	Music
Beltzhoover, Kathryn Echels	Shepherdstown	Music
Bender, Anna	Little Otter	Summer School
Berry, Darwin Feather	Morgantown	Music
Betz, Mary Maud	Martinsburg	Summer School
Bigler, Lavina	Morgantown	Music
Bishop, Frederick John	Morgantown	Music
Bishop, Carter Richard	Morgantown	Music
Blackburn, Myrtle Alice	Keyser	Summer School
Blake, Charles Calvin	Lost Creek	School Agr.
Blenko, Grace Agnes	Morgantown	Music
Bloomfield, Harry Walter	Dallas	Summer School
Boehler, Louise Anna	Morgantown	Music
Bonar, Florence May	Glen Easton	Summer School
Boseley, Jesse Lynn	New Creek	School Agr.
Bour, John William	Morgantown	Music
Bowman, Bethel Sterling	Charleroi, Pa.	Music
Brandfass, Adelia	Wheeling	Summer School
Brock, Anna	Summersville	Summer School
Brock, Lucy	Summersville	Summer School
Brookfield, Mary	Smithfield	Summer School
Brown, David Ludington	Morgantown	School Agr.
Buck, Floyd Aldine	Sistersville	Summer School

Bucklew, Isa Lynne	Kingwood	Summer School
Bungard, Winifred	S Connellsville, Pa.	Summer School
Burge, Margaret Eleanor	Moundsville	Summer School
Burge, Gertrude	Moundsville	Summer School
Burk, Anna May	Dunkard, Pa.	Music
Burkholder, Melvin Hill	Parkersburg	School Agr.
Bussey, Blanche Vernon	Alva, Oklahoma	Summer School
Butler, Laura Coyle	Bartow, Florida	Summer School
Campbell, Mary Eloise	Charles Town	Summer School
Campbell, Cora	Moundsville	Summer School
Carder, Ware Hampton	Alaska	School Agr.
Carrico, Jessie	Rowlesburg	Summer School
Carroll, Alan Keyser	Masontown	School Agr.
Carter, Carl John	Catawba	Summer School
Cather, Maude Minshall	Morgantown	Music
Cavender, Helen Eugenia	Charleston	Summer School
Charnock, Jennie May	Wheeling	Summer School
Chrisman, Martha Virginia	Morgantown	Music
Clarke, Mary Ray	Pocomoke City, Md.	Art
Clayton, Grace Lazzell	Kingwood	Summer School
Coffindaffer, Leda Clayton	Jane Lew	School Agr.
Coleman, Mary Livingston	Clarksburg	Music
Conn, Florence Maris	Pt. Marion, Pa.	Summer School
Connolly, Ella	Donze	Summer School
Conway, Edith Virginia	Wheeling	Summer School
Coombs, Edith Ellwood	Morgantown	Music
Cooper, Cora	Harrisville	Summer School
Corbin, Rosalie	Morgantown	Summer School
Cormany, Ingaba	Davis	Summer School
Coulson, May Angie	Ralphton, Pa.	Music
Courtney, Grace Olive	Morgantown	Art
Courtney, Wilma Marie	Morgantown	Music
Criss, Etta	Sutton	Summer School
Crowl, Esta Dee	Fairmont	Summer School
Dalinsky, Bessie	Morgantown	Music
Dalinsky, Anna Ida	Morgantown	Music
Davis, Florence	Benwood	Summer School
Davis, Veda Irene	Salem	Summer School
Davis, Marguerite Jane	Morgantown	Music
Davis, Eleanor Josephine	Morgantown	Music
Dawkins, Elva Leland	Sandyville	Summer School
Dawson, Pansy Byrl	Clarksburg	Music
Dawson, Haymond Wesley	Lost Creek	School Agr.
Dean, Florence	Morgantown	Summer School
DeBrocq, Edgar	Point Marion, Pa.	Music
Demoss, Bertha Lee	Morgantown	Music
Denny, Wright	Charles Town	Summer School
Deusenberry, Ruby Dale	Morgantown	Art
DeWitt, Lilie Irene	Terra Alta	Summer School
Dickens, Ulysses Sidney	Beckley	Summer School
Dille, Mary Ethel	Morgantown	Music
Dixon, Ida Amanda	Rowlesburg	Music

Doney, Gladys Beatrice	Buckhannon	Summer School
Donham, Asia Mildred	Fairmont	Music
Donley, Mary	Shepherdstown	Summer School
Donley, William	Shepherdstown	Summer School
Dorsey, Ervin	Bruce	Summer School
Douglass, Deskey	Camden	Summer School
Downey, Susan Josephine	Wellsburg	Summer School
Drummond, Earle	Clarksburg	Summer School
Duer, Mary	Grandyville	Summer School
Dunn, Jasper McDowell	Morgantown	Summer School
Edwards, Nelle	Freeman	Summer School
Egbert, Freda Dorothy	Washington, D. C.	Summer School
Elder, Clemma Irvin	Morgantown	Music
Elliott, Genevieve	Terra Alta	Music
Elliott, Eleanor Romaine	Sistersville	Summer School
Elliott, Anna Elizabeth	Colliers	Summer School
Ellison, Mary Edith	Davistown, Pa.	Summer School
Evans, Mary	Grafton	Summer School
Evans, Walter Lyle	Morgantown	School Agr.
Ewing, Clara Pyle	Frostburg, Md.	Summer School
Ewing, Annie Virginia	Moundsville	Summer School
Feather, Josephine	Albright	Summer School
Fetty, Daisy Winifred	Farmington	Music
Fike, Della Frances	Terra Alta	Summer School
Flogercy, Martha Dona	Rosebud	Summer School
Forman, Hattie Estelle	Grafton	Summer School
Forman, Maucealeene	Morgantown	Music
Founds, Henrietta	Moundsville	Summer School
Fowler, Nelle	Harrisville	Summer School
Frazier, Mary Estelle	Newburg	Summer School
Friedman, Nettie	Fairmont	Music
Fry, Mildred Elsie	Morgantown	Music
Furbee, Edna	Grafton	Summer School
Garrison, Blanche Edith	Wadestown	Music
Garrison, Lillian Knight	Morgantown	Music
Gaskill, Rose Elizabeth	Fairmont	Music
Gatts, Elmer	McMechen	Summer School
Gaughan, Sara	Mannington	Summer School
Gaughan, Agnes Bernadine	Mannington	Summer School
Gibbons, Teresa	New Martinsville	Summer School
Gibson, Zettie Mae	Pisgah	Summer School
Gibson, Zettie Beryl	Pisgah	Summer School
Gibson, Jessie Mae	Pisgah	Summer School
Gibson, Emma Florence	Scottdale, Pa.	Summer School
Gilger, Della Leona	New Martinsville	Summer School
Ginkel, Iva Elenora	Fairmont	Music
Given, Ida Susan	Sutton	Summer School
Glover, Sarah Elizabeth	Morgantown	Music
Goodwin, Mabel Reaiey	Morgantown	Music
Gordon, Jesse Raymond	Liverpool	Summer School

Gould, William Roscoe	Weston	Summer School
Grantham, James	Kearneysville	Summer School
Gray, Czerny Burnett	Sinks Grove	School Agr.
Green, Clara Belle	Wellsburg	Summer School
Gregg, Alpharetta	Speers, Pa.	Summer School
Gregg, John Morton	Morgantown	Music
Griffin, Flo	Parkersburg	Summer School
Grimes, Ulric Wilson	Lobelia	Summer School
Grosscup, Cedar Vickers	Terra Alta	Summer School
Guthrie, James Ray	Morgantown	School Agr.
Gwynn, Francis Bernard	T B., Md.	Summer School
Hale, Marguerite Frances	Weston	Summer School
Hall, Goldie Elizabeth	Morgantown	Art
Hall, Emma Caroline	Parkersburg	Summer School
Hamilton, Frank	Randall	Summer School
Hamilton, Florence Ethel	Grafton	Summer School
Hamilton, Lillian	Summersville	Summer School
Hamrick, Mary Martha	Webster Springs	Summer School
Hardy, Edith Lucretia	Morgantown	Music
Harper, Nannie Blanche	Parkersburg	Summer School
Harrington, Samuel Adrian	Greenville, N. C.	Summer School
Harris, Ernest Mullen	Morgantown	Summer School
Hartigan, Mary Virginia	Morgantown	Music
Hartman, Edwin Lee	Parkersburg	Summer School
Hawker, Florence Charlotte	Fairmont	Music
Hawkins, Opie Maud	Pullman	Music
Hayhurst, Carl	Pennsboro	Summer School
Headley, Mae	Middlebourne	Summer School
Headley, Viola	Middlebourne	Summer School
Hedrick, Callie Lillie	Bungers	School Agr.
Heiskell, Bess	Morgantown	Music
Henshaw, Frances Little	Martinsburg	Summer School
Herndon, Nettie Southworth	Terra Alta	Summer School
Hervey, Mary Amanda	Triadelphia	Summer School
Hickman, Lenore Dudley	Parsons	Summer School
Hill, Edna King	Fairmont	Summer School
Hill, Lizzie Florence	Bruceton Mills	Summer School
Hixson, Agnes Ella	West Newton, Pa.	Summer School
Hoffman, Irene Calvert	Charleston	Summer School
Hogg, George William	Salem	Summer School
Hogue, Jany Phelan	Waynesburg, Pa.	Night Class
Hood, Bess	Wheeling	Summer School
Horan, Daisy	Summersville	Summer School
House, George Edward	Wheeling	School Agr.
Houze, Florine Manella	Point Marion	Music
Howard, Mary Ellen	Point Pleasant	Summer School
Howell, Julietta Lane	Collier	Summer School
Howley, May	Wheeling	Summer School
Hoylman, Joseph Newton	Bramwell	Summer School
Humphreys, Harry Christopher	Organ Cave	Summer School
Hupp, Ethel	Cameron	Summer School
Hupp, Ora	N. Parkersburg	Summer School
Ireland, Addie Rosalie	Morgantown	Summer School

Jackson, Clarence Atkeson	Lewisburg	School Agr.
Jacobs, Virginia	Morgantown	Art
Jacobson, Bertie	Morgantown	Music
James, Goldie Clare	Glenville	Summer School
Jenkins, Lula Merrill	Terra Alta	Summer School
Jerome, Alverda Frances	West Liberty	Summer School
Johnson, Daisy	Morgantown	Summer School
Johnson, Charles Edgar	Morgantown	Music
Jolley, Amy	Proctor	Summer School
Jones, Elsie	Moundsville	Summer School
Joseph, Marie	Morgantown	Music
Keener, James Quinter	Morgantown	School Agr.
Keever, Carrie Rowena	Belleville	Summer School
Keister, Gertrude Virginia	Upper Tract	Summer School
Kelley, Edna Marguerite	Morgantown	Art
Kelly, Robert Ray	Terra Alta	Summer School
Kennedy, Rosaline	Grafton	Summer School
Kiger, Maude Olivia	Morgantown	Art
King, Russell Howard	Eglon	School Agr.
King, Robert Elmer	Huntington	Music
Kirkpatrick, Linda Ledgewood	Lewisburg	Summer School
Kiser, William Raymond	Alaska	School Agr.
Klug, Hilda	Proctor	Summer School
Lambert, Fred Bussey	Barboursville	Summer School
Lamp, Lucy Hyacinth	Washington	Summer School
Lantz, Nora Myrtle	Aurora	Summer School
Larkin, Florence Eleanor	Philippi	Summer School
Laughlin, Edna	Ravenswood	Summer School
Law, Stella Myrtle	Cairo	Summer School
Lee, Ben Yoke	Canton, China	Summer School
Lee, Grace	Evelyn	Summer School
Lee, Curtis	Davis	Summer School
Lentz, Irene	Parsons	Summer School
Leonard, Grace	Mannington	Music
Lewis, Mary Christine	Morgantown	Art
Light, Bess Lee	Clendenin	Summer School
Liller, Lena Virginia	Pinto, Md.	Summer School
Liming, Pearl	Charlotte	Summer School
Lineburg, George	New Salem, Pa.	Summer School
Linger, Mona	Weston	Summer School
Liston, Ray	Morgantown	Night Class
Lively, James William	Danville	Summer School
Loar, Lewis Moses	Morgantown	School Agr.
Loar, Harry Reed	Belington	Summer School
Locke, Mary	Weston	Summer School
Loudin, Sallie Fogg	Beverly	Summer School
Lovell, William Warner	Troy	Summer School
Luzader, Everett	Auburn	Summer School
Lynch, Belle	Weston	Summer School

Madeira, Irene Elizabeth	Morgantown	Music
Marrs, Amanda Pauline	Lewisburg	Summer School
Marsh, Stella	Sherrard	Summer School
Martin, Cyrus Howard	Thomas	Summer School
Martin, Esther Elinore	Metz	Music
Mason, Ruth	Bebee	Summer School
Mattingly, Ella Gertrude	Morgantown	Art
Maxwell, Ida Ruth	Morgantown	Music
May, Russell Chester	Dovesville, Va.	School Agr.
Mayfield, Lola Pearl	Masontown	Summer School
Metzler, Helen Lucile	Morgantown	Music
McCaskey, Vaughn	New Martinsville	Summer School
McCombs, Margaret	Wheeling	Summer School
McCuskey, Margaret Ethel	Elm Grove	Summer School
McElhaney, Izetta Blanche	Dunbar, Pa.	Summer School
McElhaney, Alice Catherine	Dunbar, Pa.	Summer School
McGee, Dorothy	Wilkinsburg, Pa.	Music
McIntire, Dosia	New Martinsville	Summer School
McKelvy, Rhoda Forester	Wellsburg	Summer School
McPherson, Beulah Cecile	Parkersburg	Summer School
Meighen, John Lynn	Waynesburg, Pa.	Summer School
Menefee, Ida Florence	Keyser	Summer School
Merrells, Minnie Jane	Buckhannon	Summer School
Miller, Elizabeth	Fairmont	Music
Miller, Vivian	Morgantown	Music
Mitchell, Clara Jeanne	Monessen, Pa.	Summer School
Moon, Jennie Sennett	Morgantown	School Agr.
Moore, Frances Bryan	Parkersburg	Summer School
Moore, Fred VanVoorhis	VanVoorhis	School Agr.
Moreland, Ethel Finnicum	Morgantown	Music
Morgan, Audrea Beryl	Fairmont	Summer School
Morris, Edna Leyman	Morgantown	Music
Moser, Walter Dearth	Uniontown, Pa.	Summer School
Mulvey, Virginia Catharine	Alma, Michigan.	Music
Newlon, Wilson Earle	Lentleyville, Pa.	School Agr.
Newman, Ora	Independence	Summer School
Nichols, Mary Louise	Fairmont	Music
Nicholson, Mae Belle	Morgantown	Music
North, Wilda Jane	Short Creek	Summer School
Nottingham, Gaynelle	Morgantown	Music
Owens, Mary Elizabeth	Weston	Summer School
Palmer, Ulysses Grant	Verona, Pa.	Summer School
Parker, Goldie Love	Morgantown	Music
Parriott, Eulalia Dixie	Morgantown	Music
Pearcy, Una Virginia	Morgantown	Music
Peebles, Eloise Hanna	Charleston	Summer School
Pennington, Edith	Pluefield	Summer School
Pepper, Ralph	Flemington	School Agr.
Pew, Sara Agnes	Tollgate	Summer School
Pharr, Telford Ruddell	Capmills	School Agr.

Pollock, Rebecca Luella	Waynesburg, Pa.	Night Class
Poole, Phoeba Elizabeth	Morgantown	Summer School
Post, Margaret	Morgantown	Music
Posten, Elizabeth	Morgantown	Summer School
Posten, Lola Bernice	Morgantown	Music
Powers, Mazie	Moundsville	Summer School
Pracht, Lou	Wheeling	Summer School
Price, Blanche Elizabeth	Morgantown	Summer School
Price, Goldie Mildred	Morgantown	Art
Price, Mary Belle	Morgantown	Music
Reed, Alice Estelle	Wheeling	Summer School
Renner, Daisy	Mt. Morris, Pa.	Music
Richmond, Carl Stanley	Pleasant Valley	Summer School
Robertson, Olive Virginia	Charleston	Summer School
Robertson, Henry Clay	Charleston	Summer School
Rodes, Bertha Anna	Fayetteville	Summer School
Rogers, Margaret	Ragen, Nebraska	Music
Rogers, Jamie Dilworth	Morgantown	Summer School
Rosenblum, Naomi	Connellsville, Pa.	Summer School
Ross, Dee Louise	Bridgeport	Summer School
Rowley, Bessie	Ravenswood	Summer School
Ryder, Virgie	Morgantown	Music
Sanderson, Cecil Blandford	Morgantown	Music
Sanford, Alice Wentworth	Moundsville	Summer School
Sapp, Minnie May	Morgantown	Summer School
Scherr, Alma Barbara	Morgantown	Art
Schilling, Ida	Warren, Ohio	Summer School
Schultz, Valerie Elizabeth	Morgantown	Art
Scott, Erskine Lowry	Grand View	School Agr.
Settle, Nina Forest	Charleston	Summer School
Schaffer, James Harvey	Newburg	Summer School
Shean, Forrest	Morgantown	School Agr.
Shelby, Sarah	Morgantown	Summer School
Shepler, Katharine	Scottdale, Pa.	Summer School
Shingleton, Pearl	Friendly	Summer School
Shoulders, Charles Jesse	Harner	School Agr.
Shriver, John Leslie	Sistersville	School Agr.
Shroyer, May Alma	Fairmont	Music
Shunk, John Heber Gerhardt	Morgantown	Music
Shutts, Sanford Clermont	Eatons	Summer School
Simmons, Mary Frances	Morgantown	Summer School
Sims, Katharine Brown	Keyser	Summer School
Sine, Julia Elizabeth	Parkersburg	Music
Sisler, Rebecca Kate	Terra Alta	Summer School
Smith, John Martin	Wilbur	School Agr.
Smith, Emma Iona	Morgantown	Music
Smith, Ellen Selden	St Albans	Summer School
Smith, Ada Ruth	Salem	Summer School
Snyder, Edith	Smithfield	Summer School
Somerville, Flossie	Connellsville, Pa.	Summer School
Spradling, Ella Jordan	Charleston	Summer School

Springer, Albert Gail	Morgantown	School Agr.
Springer, Oma	Flemington	Music
Stemple, Isabel	Amboy	Night Class
Stephens, Bess May	Parkersburg	Summer School
Sterbutcel, Rosalie	Everson, Pa.	Summer School
Stewart, Mattie Ann	Morgantown	Summer School
Stoetzer, Mabel	Parkersburg	Summer School
Sturm, Ella	Viropa	Summer School
Sutherland, Margaret Root	Morgantown	Music
Switzer, Ethel Clarence	Philippi	Music
Sycafoose, Francis Newton	Webster Springs	Summer School
Tarr, Helen Elisabeth	Morgantown	Music
Taylor, Pauline Mabel	Purgitsville	Summer School
Taylor, Edith Pugh	Purgitsville	Summer School
Tebay, Estella	Parkersburg	Summer School
Thomas, Janet	Morgantown	Music
Thomas, Paul Flesher	Evans	School Agr.
Tomblyn, William Edwin	Flemington	Summer School
Travis, Ethel Anna	Moundsville	Summer School
Tuckwiller, Rachel	Lewisburg	Music
Tyers, Sarah Ellen	Wellsburg	Summer School
Ullman, Ona Grace	Stafford, Ohio	Summer School
Utt, Sue	Morgantown	Night Class
VanDyne, Hettie	Allister	Summer School
VanZandt, Agnes	Newburg	Summer School
Wade, Georgia Chorpening	Morgantown	Music
Wade, Sallie Shields	Morgantown	Music
Waddell, Hettie Elizabeth	Wheeling	Summer School
Wagner, Beulah	Letart Falls, Ohio	Summer School
Wagner, Lenore Catherine	Wheeling	Summer School
Wallace, Luella	Wheeling	Summer School
Wambaugh, Olive Mae	Morgantown	Music
Warren, Jeannette Mayburry	Weston	Summer School
Waters, Ruby Belle	Morgantown	Art
Watkins, Grace Minette	Grafton	Music
Weaver, Jessie Beryl	Morgantown	Music
Weeks, Ella May	Triadelphia	Summer School
West, Neva Blanche	Glenville	Summer School
West, Ottie Virginia	Newburg	Summer School
West, Lyel	Glenville	Music
Whalen, Gertrude Charity	Benwood	Music
Wheeler, Marie Lucille	Rowlesburg	Music
Whelan, Julia	Weston	Summer School
Wherry, James Elwood	Coraopolis, Pa.	Summer School
Whetsell, Mabelle Eleanor	Morgantown	Music
White, Mary Gertrude	Morgantown	Music
White, Hattie Jane	Terra Alta	Summer School
White, Grace	Grafton	Summer School

Whiteside, Elizabeth	Leon	Summer School
Whitham, Rachel Elizabeth	Morgantown	Art
Williams, Annie Mary	Connellsville, Pa.	Summer School
Williams, Ruth Hanna	New Castle, Pa.	Music
Wilson, Mabel	Pennsboro	Music
Wilson, Cora Ella	Belington	Summer School
Winer, Minnie Gwendolyn	Point Marion, Pa.	Music
Wines, Dessie	Walker	Summer School
Witte, Homer Clay	Coalburg	Summer School
Woodall, Norma	Connellsville, Pa.	Summer School
Woodford, Bessie Lenore	Morgantown	Art
Wright, Gertie Maude	Behler	Summer School
Young, Stella Mae	Charleston	Summer School
Zeiler, Melissa	Great Cacapon	Summer School
Zinn, Lacy Glenn	Philippi	School Agr.
Zinn, Hazel May	Grafton	Summer School

SUMMARY OF UNIVERSITY ENROLLMENT FOR 1912-1913

(AS FAR AS REPORTED, FEBRUARY 22, 1913)

THE COLLEGES

	CANDIDATES FOR DEGREES								Special Students			Total Number Students		
	Grad.	Sen.	Jun.	Soph.	Fresh.	Male	Fem.	Total	Male	Fem.	Total	Male	Fem.	Total
Arts and Sciences	17	37	40	66	183	213	130	343	5	6	9	216	136	352
Engineering	1	7	13	34	45	100	00	100	2	0	2	102	00	102
Agriculture	9	7	7	13	16	43	00	43	0	0	0	43	00	43
Law	2	7	17*	29*		53	2	55	6	0	6	59	2	61
Totals	20	58	77	142	244	409	132	541	11	6	17	420	138	558

THE SCHOOLS

	Male	Fem.	Total
The School of Music	32	95	127
The School of Fine Arts	0	16	16
The School of Agriculture	27	3	30
The Summer School	45	216	261†
The School of Methods for Sunday School Workers	16	32	48
The Farmers' Course	31	00	31
The Night Classes	0	4	4
Totals	131	366	497
Entire Enrollment at Morgantown	551	504	1055
Additional Enrollment in Agricultural Extension Schools	216	60	276
Grand Total	767	564	1331‡

* Students in the College of Law are known as Third year, Second year, and First year Students. (The total enrollment in the Summer School, including those admitted to course only or enough for school year 1912-13, [illegible] Rose Vincent.)

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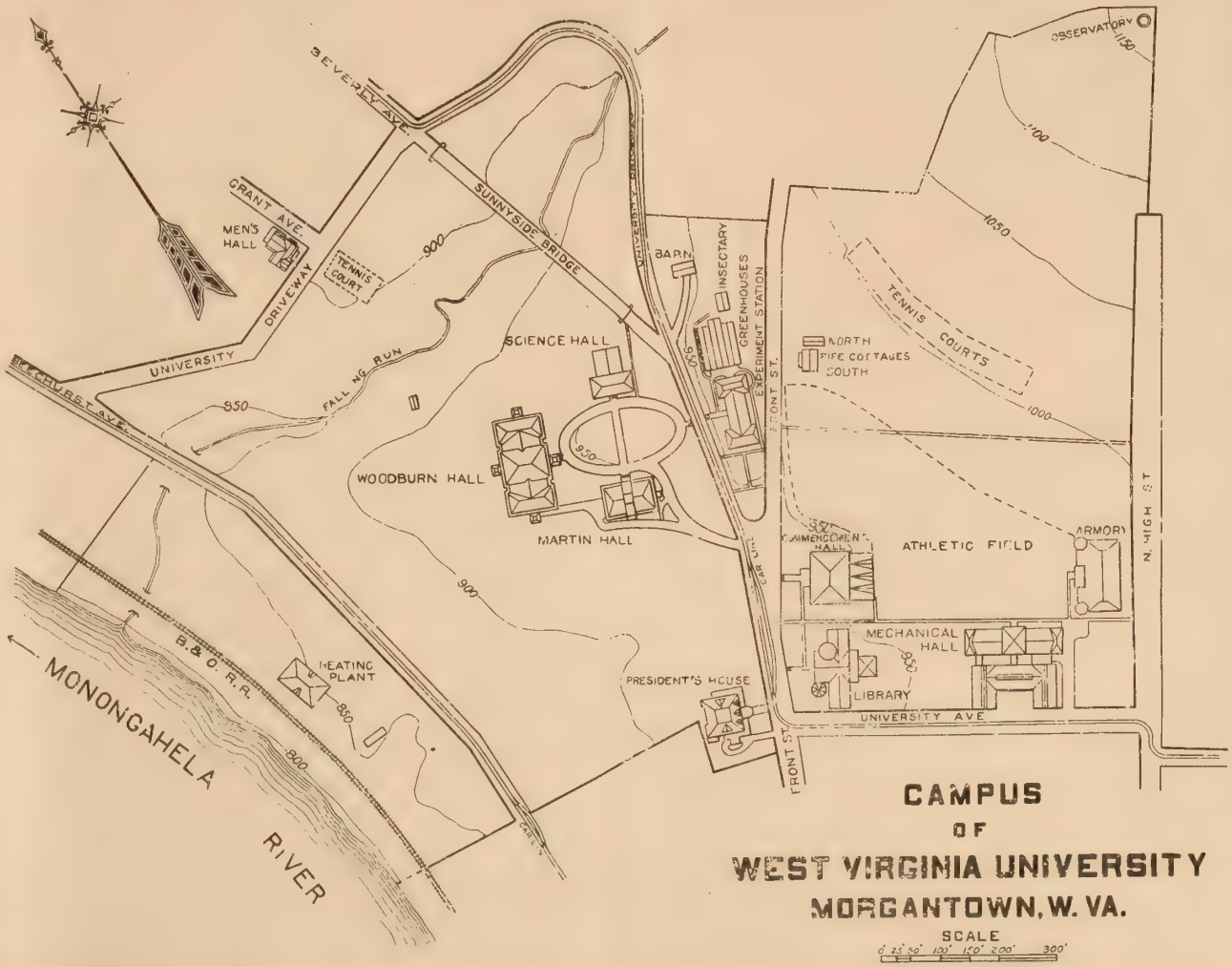
CAMPUS
OF
WEST VIRGINIA UNIVERSITY
MORGANTOWN, W. VA.
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BEVERLY AVE.
GRANT AVE.
MEN'S HALL
TENNIS COURT
DRIVEWAY
UNIVERSITY
SUNNYSIDE BRIDGE
FALLING RUN
BEECHURST AVE.
SCIENCE HALL
WOODBURN HALL
MARTIN HALL
BARN
INSECTARY
GREENHOUSES
EXPERIMENT STATION
FRONT ST.
NORTH
PIPE COTTAGES
SOUTH
TENNIS COURTS
OBSERVATORY
ATHLETIC FIELD
ARMORY
N. HIGH ST.
MECHANICAL HALL
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WEST VIRGINIA UNIVERSITY

FORTY-SEVENTH YEAR

CATALOGUE AND ANNOUNCEMENTS

1913 : : : : 1914

MORGANTOWN, WEST VIRGINIA
PUBLISHED BY THE UNIVERSITY

OHIO VALLEY PUBLISHING CO.
Parkersburg, W. Va.

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1914

JANUARY

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UNIVERSITY CALENDAR

1914.

June 22, Monday.....Summer School Begins

August 21, Friday.....Summer School Ends

September 14, Monday.....First Semester Begins

September 14, 15, Monday and Tuesday.....
.....Matriculation and Registration of Students

September 16, Wednesday.....First Recitations of First Semester

September 16, Wednesday, 10 A. M.....Fall Convocation

November 20, Friday.....Day for Mid-semester Report

November 26, Thursday, to November 29, Sunday, inclusive.....
.....Thanksgiving Recess

November 30, Monday.....Recitations Resume

December 5, Saturday.....
.....Fifth Anniversary Meeting of the Phi Beta Kappa Society

December 19, Saturday, to January 4, 1915, Monday.....
.....Christmas Holiday Recess

1915.

January 5, Tuesday.....Recitations Resume

January 23, Saturday.....Last Recitation of First Semester

January 25, Monday, to January 28, Thursday, inclusive.....
.....Final Examinations of First Semester

February 1, Monday, (Registration Day).....Second Semester Begins

February 2, Tuesday.....First Recitations of Second Semester

February 3, Wednesday, 10 A. M.....Winter Convocation

February 22, Monday.....Washington's Birthday, a Holiday

April 7, Wednesday.....Day for Mid-semester Reports

April 8, Thursday, to April 13, Tuesday, inclusive.....Recess

June 8, Tuesday.....Last Recitations of Second Semester

June 9, Wednesday, to June 12, Saturday, inclusive.....
.....Final Examination of Second Semester

June 16, Wednesday.....Commencement

West Virginia University

MORGANTOWN

ESTABLISHED FEBRUARY 7, 1867.

THE STATE BOARD OF CONTROL

403 CAPITOL STREET

CHARLESTON, WEST VIRGINIA.

JAMES S. LAKIN, PRESIDENT.....Charleston, W. Va.

WILLIAM M. O. DAWSON, TREASURER.....Charleston, W. Va.

J. M. WILLIAMSON.....Charleston, W. Va.

The State Board of Control has the direction of the financial and business affairs of the state educational institutions.

THE STATE BOARD OF REGENTS

STATE CAPITOL BUILDING

CHARLESTON, WEST VIRGINIA.

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The State Board of Regents has charge of all matters of a purely scholastic nature concerning the state educational institutions.

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The College of Law

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JOHN NATHAN SIMPSON, M.D., Dean

The School of Music

LOUIS BLACK, Director

The Summer School

WAITMAN BARBE, Litt.D., Director

THE COUNCIL OF ADMINISTRATION

The President of the University and the Deans of the various colleges.

THE UNIVERSITY FACULTY

The President, Deans of the various colleges, Professors, Associate Professors and Assistant Professors in all divisions of the University, the Dean of Women, the Commandant of Cadets, the Director of the School of Music and the Librarian of the University.

*From July 1, 1914.

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Public Exercises: Professors NEIL, TRUSCOTT and EMORY, Director BLACK (Secretary), and Mr. LEWELLYN

Library: Mr. ARNETT, Professors REESE, VICKERS, ARMSTRONG, CHURCH, COX, and SHELDON

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University Publications: Associate Professor D. D. JOHNSON, Professors BARBE and DAVIS, Assistant Professor KING (Secretary) and Mr. KILE

Student Publications: Professors WHITEHILL, STATHERS, CHITWOOD and BISHOP, Associate Professor SMITH

Summer School: President HODGES, Dean F. B. TROTTER, Professors BARBE, DEAHL, and ABBEY

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Student Members: IRVIN ODA ASH (Term expires June 30, 1914), FRED BLAINE DEEM (Term expires June 30, 1915)

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Professor of Mathematics, Emeritus

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*THOMAS CLARK ATKESON, PH. D. 234 Prospect Street
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JOHN LEWIS SHELDON, PH. D. 299 Grand Street
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Professor of Education and Acting Head of the Department of Philosophy

*Retires July 1, 1914.

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Professor of History and Political Science

JOHN NATHAN SIMPSON, A. B., M. D. — 14 Willey Driveway
Professor of Anatomy and Physiology

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ALBERT MOORE REESE, PH. D. — 8 Waitman Street
Professor of Zoology

OLIVER PERRY CHITWOOD, PH. D. — Park Street
Professor of European History

CHARLES EDMUND NEIL, A. M. — Madera Hotel
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Professor of Law

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CHAUNCEY WILLIAM WAGGONER, PH. D. — 727 N. Front Street
Professor of Physics

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Head of the Department of Vocal Music

MADISON STATHERS, PH. D. — 279 Grand Street
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Professor of English

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LLOYD LOWNDES FRIEND, A. M. Charleston, W. Va.
Professor of Secondary Education

WILLIAM HORACE ALDERMAN, B. SC. AGR. 184 First Street
Professor of Horticulture

EDWARD NATHAN ZERN, B. SC. E. M. 35 South Walnut Street
Professor of Mining Engineering

GEORGE FITCH WELLS, LL. B., LL. D. 115 Wagner Road
Professor of Law

ROLAND PARKER DAVIS, S. B., M. C. E. 4 Ash Street
Professor of Structural and Hydraulic Engineering

WILLIAM HENRY SCHULTZ, PH. D. 128 Willey Street
Professor of Pharmacology and Materia Medica

AARON ARKIN, PH. D., M. D. 14 Willey Driveway
Professor of Pathology and Medical Bacteriology

JOSEPH ELLIS HODGSON, PH. D. 185 Grant Avenue
Professor of Mathematics

*EARL WOODDELL SHEETS, B. SC. AGR.
Professor of Animal Husbandry

*FIRMAN E. BEAR, M. SC.
Professor of Soils

ISAAC SCOTT COOK, JR., B. SC. AGR. 258 McLane Avenue
Professor of Agronomy

MYRON JOHN ABBEY, A. B. High Street
Professor of Agricultural Education

*HENRY CRAIG JONES, A. B., LL. B.
Professor of Law

ALEXANDER DENNIS WILLIAMS High Street
Chief Engineer State Road Bureau

DEAS ARCHER 519 Front Street
First Lieutenant, Twenty-sixth Infantry, United States Army, Professor of Military Science and Tactics and Commandant of Cadets

*From July 1, 1914.

CALVIN R. TITLOW — 100 Beverly Avenue
Director of Agricultural Extension

IRA E. ROBINSON
Special Lecturer in Law

SIMEON CONANT SMITH, A. M. — 174 High Street
Associate Professor of Rhetoric

LEONARD MARION PEAIRS, B. Sc., M. S. — 425 Spruce Street
Associate Professor of Entomology

ARLEIGH LEE DARBY, A. M. — 487 High Street
Associate Professor of Latin and Italian

PAUL BOMBARGER BENNETCH, B. S. AGR. — 578 Front Street
Associate Professor of Dairy Husbandry

ORVILLE M. JOHNSON, B. S. AGR. — 118 Willey Street
Associate Professor of Farm Management

ARTHUR LINCOLN DACY, B. S. — 28 Buckhannon Avenue
Associate Professor of Horticulture

DAVID DALE JOHNSON, A. M. — 305 Fayette Street
Associate Professor of English

OLIVER LEROY McCASKILL, PH. B., J. D. — 27 Wilson Avenue
Associate Professor of Law

*JOHN BEHNY GRUMBEIN, B. S. M. E. — 195 Grant Avenue
Associate Professor of Mechanical Engineering

DENNIS MARTIN WILLIS, A. B., LL. M. — 212 Park Street
Assistant Professor of Commerce

CHARLES AUGUSTUS LUEDER, D. V. M. — 752 N. Front Street
Assistant Professor of Veterinary Science

FREDERIC CURTIS BUTTERFIELD, A. B. — 324 Willey Street
Head of the Piano Department

RACHEL HARTSHORN COLWELL, A. M. — 647 Spruce Street
Assistant Professor of Home Economics

SAMUEL JOHN MORRIS, M. D. — 81 Kingwood Street
Assistant Professor of Anatomy and Histology

*On leave of absence until August 31, 1914.

BENJAMIN WALTER KING, A. B. 392 Willey Street
Assistant Professor of Economics

ALEXANDER HARDIE FORMAN, PH. D., M. M. E. 285 Grand Street
Assistant Professor of Electrical and Experimental Engineering

EDGAR L. ANDREWS, B. S. AGR. University Farm
Assistant Professor of Poultry Husbandry

CHARLES SUMNER CROW, A. M. 456 High Street
Assistant Professor of Education

THOMAS PORTER HARDMAN, A. B. IN JUR. (Oxford) 136 High Street
Assistant Professor of Law

SUSAN MAXWELL MOORE, A. B. 247 Willey Street
Instructor in Piano

GRACE MARTIN SNEE, B. M. 649 Spruce Street
Instructor on the Piano and Pipe Organ

THOMAS HOWARD CATHER 394 Willey Street
Instructor in Machine Shop and General Foreman of Shops

MARGARET WINTON HORNE 647 Spruce Street
Instructor in Violin

FREDERICK ROST KOELZ, A. B. 293 Willey Street
Instructor in German

LUTHER FRANCIS SUTTON, B. SC., B. SC. AGR. 162 First Street
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EUGENE CURTIS AUCHTER, B. SC. AGR. 425 Spruce Street
Instructor in Horticulture

MARY BERTHA OLIVER, B. S. 561 Front Street
Instructor in Home Economics and Director of Physical Training for Women

*ALEXANDER PARKS MOORE, A. B. 220 Prospect Street
Instructor in Romance Languages

**RALPH EDWARD HUNT, B. S. AGR. 150 McLane Avenue
Instructor in Animal Husbandry

*Resigned October 18, 1913.

**Resigned January 1, 1914.

RUFUS ASA WEST — 181 First Street
Instructor in Metal Working and Stationary Engineer

FLORA RAY HAYES, A. B. — 480 High Street
Instructor in Theory and History of Music

*OLIVER SMITH, A. B., B. S. AGR. — 248 Jackson Avenue
Instructor in Agronomy

EDWIN REGUR SWEETLAND, B. S., LL. M. — 107 McLane Avenue
Instructor in Physical Training and Director of the Gymnasium

HUBERT HILL, B. SC., M. SC. — 255 Pearl Avenue
Instructor in Chemistry

ROBERT WALDO FISHER, M. D. — 186 Willey Street
Instructor in Physical Diagnosis

IRVIN HARDY, M. D. — 148 High Street
Instructor in Minor Surgery

RALPH RUDOLPH JEFFRIES, B. SC. — 150 McLane Avenue
Instructor in Horticulture

WILLIAM BECK KEMP, B. S. — 244 Walnut Street
Instructor in Agronomy

RAYMER EGBERT SEAMAN — 574 Price Street
Instructor in Woodworking and Foundry Practice

WILLIAM ARMSTRONG PRICE, Jr., PH. D. — 580 Spruce Street
Instructor in Geology

EDWARD FRED WOODCOCK, A. M. — 48 University Driveway
Instructor in Botany and Bacteriology

JOSEPH WILLIAM HAKE, A. M. — 725 Front Street
Instructor in Physics

JOHN THERON ILLICK, A. M. — 234 Prospect Street
Instructor in Zoology

*ISAAC BEN JOHNSON, B. S. — 62 Beverly Avenue
Instructor in Animal Husbandry

GEORGE WALTER GROW, B. S. M. E. — 721 Front Street
Instructor in Drawing and Machine Design

*Resigned February, 1914.

CLAUD CARL SPIKER, A. B. — 89 Kingwood Street
Instructor in Romance Languages

WALTER A. MESTREZAT — 57 Bridge Street
Assistant in Music (Wind Instruments)

ROY OLNEY HALL, LL. M. — 25 Demain Avenue
Assistant in Law

AMELIA ROBINSON MUMFORD, A. B. — 540 Spruce Street
Assistant in English

CHARLES BYRON JOLLIFFE — 210 Cedar Street
Student Assistant in Physics

JOSEPH SHIELDS MILLER — 107 Beverly Avenue
Student Assistant in Civil Engineering

JAMES CORNWALL ALLEN — 670 High Street
Student Assistant in Mechanical Drawing

DEAN COOK SKINNER — 2 Falling Run
Student Assistant in Mechanical Drawing

JOHN BARTON MITCHELL — 16 Forest Avenue
Student Assistant in Drawing and Experimental Engineering

BIRD MAY TURNER — 430 Spruce Street
Student Assistant in Mathematics

EDMUND DANIELS McGARRY — 340 Willey Street
Student Assistant in History

FRANK HALL — 227 Grant Avenue
Student Assistant in Mathematics

CHARLES EVERETT MYERS — 516 University Driveway
Student Assistant in Agriculture

GENEVIEVE ELLIOTT — Women's Hall
Student Assistant in Music

THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION STAFF

E. DWIGHT SANDERSON, B. Sc. Agr. — 83 Beverly Avenue
Director

BERT HOLMES HITE, M. Sc. — Peabody Hotel
Chemist

HORACE ATWOOD, M. Sc. Agr. — Charles Avenue
Poultryman

NAHUM JAMES GIDDINGS, M. Sc. — 36 University Driveway
Plant Pathologist

WILLIAM EARL RUMSEY, B. Sc. Agr. — 415 Park Street
State Entomologist

LEONARD MARION PEAIRS, B. Sc. Agr. M. S. — 425 Spruce Street
Research Entomologist

PAUL BOMBERGER BENNETCH, B. S. Agr. — 578 Front Street
Dairyman

*EARL WOODELL SHEETS, B. S. Agr.
Animal Husbandry

**ORVILLE M. JOHNSON, B. S. Agr. — 118 Willey Street
In Charge of Farm Management Investigations

ISAAC SCOTT COOK, Jr., B. Sc. Agr. — 258 McLane Avenue
Agronomist

*FIRMAN E. BEAR, M. Sc.
Soil Investigations

CHARLES AUGUSTUS LUEDER, D. V. M. — 752 N. Front Street
Veterinarian

WILLIAM HORACE ALDERMAN, B. Sc. Agr. — 184 First Street
Horticulturist

LEE IRVING KNIGHT, Ph. D.
Hull Botanical Laboratory, University of Chicago, Chicago, Illinois
Plant Physiologist

ARTHUR LINCOLN DACY, B. Sc. — 28 Buckhannon Avenue
Associate Horticulturist

RALPH RUDOLF JEFFRIES, B. Sc. — Experiment Station
Assistant Horticulturist

EUGENE CURTIS AUCHTER, B. Sc. Agr. — 425 Spruce Street
Assistant Horticulturist

*Effective July 1, 1914.
**In co-operation with U. S. Department of Agriculture.

LUTHER FRANCIS SUTTON, B. Sc., B. S. Agr. — 162 First Street
Assistant Horticulturist

WILLIAM BECK KEMP, B. S. — 244 Walnut Street
Assistant Agronomist

†OLIVER SMITH, A. B., B. S. Agr. — 248 Jackson Avenue
Assistant Agronomist

**CLEVELAND HENDRICKS SCHERFFIUS — Milton, W. Va.
In Charge of Tobacco Investigations

*RALPH EDWARD HUNT, B. S. Agr. — 150 McLane Avenue
Assistant in Animal Husbandry

*ISAAC BEN JOHNSON, B. S. — 62 Beverly Avenue
Assistant in Animal Husbandry

EDGAR L. ANDREWS, B. S. Agr. — University Farm
Assistant Poultryman

DAVID CARLTON NEAL, B. Sc. — 457 High Street
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ANTHONY BERG, B. S. — 36 University Driveway
Assistant in Plant Pathology

CHARLES EDWARD WEAKLEY, Jr. — Peabody Hotel
Assistant Chemist

FRANK BATSON KUNST, A. B. — Garlow Building, High Street
Assistant Chemist

HUBERT HILL, B. Sc., M. Sc. — 255 Pearl Avenue
Assistant Chemist

WILLIAM JAMES WHITE — Marion Street
Auditor

MARTHA ANN STEWART — 580 Spruce Street
Librarian

J. G. TILTON, A. B. — 741 North Front Street
Secretary

ORVILLE MERTON KILE, B. S. Agr. — 170 McLane Avenue
Agricultural Editor

**In co-operation with U. S. Department of Agriculture.
*Resigned February, 1914.

AGRICULTURAL EXTENSION DEPARTMENT STAFF

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Director

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State Agent in Charge Boys' Clubs

NELL MARY BARNETT, B. S. — 571 Spruce Street
Home Economics

*SADIE RAY GUSEMAN, B. Sc. — 283 Second Street
State Agent in Charge Girls' Clubs

*NAT. T. FRAME, A. B.
State Agent in Charge of Farmers' Co-operative Demonstration Work

*In co-operation with U. S. Department of Agriculture.

LIBRARY STAFF

LONNA DENNIS ARNETT, PH. D. — 174 First Street
Librarian

AMY ALLEN, A. B., B. L. S. — 324 Willey Street
Assistant Librarian

KATHERINE CLIFTON HEDRICK — 347 Willey Street
Assistant in Law Library

ANNA GRACE COX, A. B. — 340 Willey Street
Assistant Librarian

ROBERT CLIFTON SPANGLER — 281 Second Street
Assistant Librarian

AJAX TELEMON SMITH — 672 High Street
Assistant Law Librarian

FRANK BOWMAN LEWELLYN, A. B. — 89 Kingwood Street
General Secretary, Young Men's Christian Association

JAMES SCOTT MURPHY, B. S. M. E., E. E. — 108 Beverly Avenue
Foreman of University Grounds and Buildings

CARL GEORGE BACHMAN, A. B. — 465 High Street
Graduate Manager of Athletics

THE UNIVERSITY

DESCRIPTION OF THE INSTITUTION

LOCATION

Morgantown, the seat of the University, is the county seat of Monongalia county. It is a beautiful town of twelve thousand inhabitants, located on the Monongahela river and the Baltimore and Ohio railroad, 103 miles east of Wheeling, and the same distance south of Pittsburg. It has modern conveniences of natural gas, water-works, electric lights, street railways, local and long distance telephones, and is noted for its healthful conditons, physical, social, and moral. There are churches of the following denominations in the town: Presbyterian, Methodist Episcopal, Methodist Protestant, Baptist, Protestant Episcopal, Lutheran, Christian and Roman Catholic. There are no saloons.

Few institutions of learning have more attractive natural sites. The University grounds border the Monongahela river and afford a most picturesque outlook. The campus comprises about fifty acres. The University has also a farm of about one hundred acres.

HISTORY

West Virginia University originated from the national land grant act of July 2, 1862, and from the subsequent action of the state legislature in accepting and carrying out the provisions of the act. On January 9, 1866, the board of trustees of the Monongalia Academy at Morgantown tendered to the legislature for the use of the contemplated state or land grant college, all its property, including Woodburn Female Seminary, estimated at $51,000, on condition that the college should be located at Morgantown. On January 30, 1867, the legislature accepted the property and on February 7 passed an act permanently establishing "The Agricultural College of West Virginia" and authorizing the governor to appoint eleven suitable persons as a board of visitors.

The eleven visitors held their first meeting on April 3, 1867, at which time they appointed Alexander Martin president and estab-

lished collegiate, scientific and agricultural departments of instruction.

By an act of December 4, 1868, the name of the college was changed to "West Virginia University" and the "board of visitors" to the "board of regents."

The dates of the establishment of the special colleges and schools now comprised in the University are as follows: the college of law, 1878; the college of engineering, 1887; the agricultural experiment station, 1888; the college of agriculture, 1897; the school of music, 1897; the school of medicine, 1902.

The University has had eight regular presidents. Alexander Martin resigned in 1875. He was succeeded by John W. Scott, (acting president), 1875-7; John Rhey Thompson, 1877-81; Daniel Boardman Purinton (acting president), 1881-2; William L. Wilson, 1882-3; Robert C. Berkeley (chairman of the faculty), 1883-5; Eli Marsh Turner, 1885-93; Powell Benton Reynolds (acting president), 1893-5; James L. Goodnight, 1895-7; Jerome Hall Raymond, 1897-1901; Daniel Boardman Purinton, 1901-1911; Thomas Edward Hodges, 1911-.

GOVERNMENT AND ORGANIZATION

The financial and business affairs of the University and of all the other state educational institutions are directed by a state board of control consisting of three members appointed by the governor. This board also exercises a general control over the various public institutions of the state. The academic control of the University and also of the other educational institutions of the state, with the exception of the School for the Deaf, Dumb, and Blind, The Boys' Reform School, and The Girls' Industrial School, is vested in a single board of regents. The board is bi-partisan and consists of the state superintendent of free schools (ex-officio), who is elected by the people, and of four other members who are appointed by the governor.

The internal administration of the University is vested in the President, The Council of Administration, and The University Faculty. All matters of a purely administrative or executive nature are in the hands either of the president alone or of the president and council. The faculty is the general legislative body; it fixes the requirements for entrance and graduation and has immediate direction of the general educational policy of the institution. Subordinate to the faculty are a number of standing committees, appointed by the president.

The University organization embraces:—

The College of Arts and Sciences .
The College of Engineering and Mechanic Arts.
The College of Agriculture.
The College of Law.
The West Virginia Agricultural Experiment Station.

The following schools and divisions are connected with the University in their management and work, but do not confer degrees:—

The School of Music.
The Summer School.
The School of Medicine.
The Division of Military Science and Tactics.
The Division of Agricultural Extension.

FUNDS

The funds for maintaining the University are derived from the following sources: (1) Interest on the land grant endowment of $115,750; (2) the Morrill fund; (3) the Hatch fund; (4) the Adams fund; (5) biennial appropriations by the state legislature; (6) fees and tuition. The annual income of the University and Experiment Station from all sources is now approximately $275,000.

BUILDINGS

The buildings are as follows:—

1. Woodburn Hall, a three-story building, containing the administrative offices, lecture rooms, the law library and various laboratories. A portion of the third floor of this building is occupied by the University School of Music.

2. Martin Hall, a three-story building, containing lecture-rooms and laboratories for the departments of physics and chemistry.

4. Commencement Hall, a large two-story building, containing a commodious chapel, with 1,500 seats, and the gymnasium.

5. The Agricultural Building, a two-story building, containing the laboratories and offices of the Agricultural Experiment Station.

6. The Armory and Drill Hall, for the Division of Military Science.

7. Mechanical Hall, occupied by the College of Engineering and Mechanical Arts.

8. The Library, containing the general library, reading, and seminary rooms, and the museum of geology and paleontology.

9. The president's house.

10. The Central Heating Plant.

11. The Men's Hall, or dormitory.

12. The Women's Hall and Annex, dormitories for women students.

13. The Fife Cottages, containing lecture-rooms and the anatomical, botanical, and bacteriological laboratories.

14. The Horticultural Building, containing the offices, recitation rooms and laboratories of the Department of Horticulture.

15. The Office Building of the Agricultural Extension Staff.

Besides these there are the various buildings on the University Farm.

All of the buildings mentioned, except the last five and the farm buildings, are of brick and stone.

THE UNIVERSITY LIBRARY

The Library Building is a three-story stone structure, 135 feet long by 50 feet wide, with book room annex in the rear. The basement of the building is used for storage. The first, or main floor, contains the reading and reference rooms, the cataloguing rooms and the office for the librarian. On the upper floors are rooms for government documents, storage, and for class work.

The reading and reference rooms are equipped with modern library appliances and are convenient to the book room in the rear.

The University Library consists of the General Library, the Law Library, and the Experiment Station Library. The General Library is located in the Library Building and numbers about 38,000 volumes, including 5,500 government documents and the Willey Library numbering 1,500 volumes. The Willey Library was donated to the University by the heirs of the late Senator W. T. Willey and is opened to the public for reference use. Two hundred and fifty periodicals are received, including publications of societies and scientific journals. Most of the county papers of the state are on file in the reading room.

The Law Library, numbering 5,000 volumes, is located in Woodburn Hall. The library of the Agricultural Experiment Station, containing valuable sets of chemical journals and other technical material, in all about 5,000 volumes, is open for the use of members of the University

All officers and students and, under special restrictions, persons not connected with the University, have the privilege of drawing books from the library for home use, two volumes being allowed

at one time. The corps of instruction have direct access to the shelves and students may have this privilege for special investigation upon recommendation of their instructors. The most important reference books, and books used in connection with the courses of instruction, numbering between 4,000 and 5,000, are kept on open shelves in the reference room. A card catalogue, shelf list and other bibliographic aids are provided and the members of the library staff are ready at all times to give assistance in research and investigation.

The library is open from 7:45 a. m. to 10 p. m. every week day during the semester except Thanksgiving day, Christmas day, New Year's day and the Fourth of July. On Sundays, the library is open for readers from 2 to 5 p. m. During the Christmas and summer vacations it is open on week days from 8 to 12 a. m.

PHYSICAL LABORATORIES

The department of physics occupies the basement and first floor of Science Hall. The general lecture room is provided with water, gas, compressed air, electrical power, a special device for rapidly darkening the room, and a solid masonry pier for galvanometers, etc., requiring a non-vibratory support. The two general laboratories are large enough to accommodate 20 students working at one time and are equipped with the view of accomplishing the maximum amount of laboratory work in the minimum time. The photometer room is equipped with a Reichanstalt-Lummer-Brodhun Photometer and a Hilger Constant Deviation Spectrophotometer. The electrical standardizing laboratory is equipped with three small individual switch-boards connecting with the main power board, a full line of D. C. and A. C. measuring instruments, six mounted galvanometers, a Leeds and Northrup Potentiometer with standard cells and resistances for D. C. calibration, a Siemens Dynamometer for A. C. calibration, Thompson, Ring, and Epstein sets for iron testing, standard capacities, Wheatstone and Cary-Foster Bridges for resistance measurements. The shop is supplied with a full line of bench tools for the manufacture and repair of apparatus, and has in addition a 9-in. lathe, a circular saw and emery wheels,—all driven by a 3-HP motor.

Electrical power is supplied from a motor-generator set, the D. C. voltage being controlled by a Tirrill Reguator insuring steady voltage for laboratory work. It has in addition a 220-volt A. C. supply, and 50 volts from a storage battery. The distributing board is equipped with auto-transformers and special rheostats making it possible to distribute various kinds of power to each laboratory in

the department. The department is also equipped with apparatus for advanced work in light and heat.

The laboratory has modern equipment for wireless telegraphy. Wireless time signals are received twice each day from the navy station at Arlington, Va.

The University Library has on file the current numbers of most of the standard journals of physics.

CHEMICAL LABORATORIES

The rooms assigned to the Department of Chemistry consist of two lecture rooms and four large laboratories. Connected with these are two weighing rooms and two preparation rooms. The laboratories afford working space for one hundred students at a time, and are supplied with water, gas, chemicals and apparatus necessary for practical work. This apparatus includes a large number of pieces used in illustrating the elementary principles of the science, as well as the more expensive instruments used in analytical work. A collection of the latest reference and text books is kept within easy reach of the students.

In addition to the ordinary apparatus, combustion furnaces, tube furnaces, a colorimeter, specific gravity apparatus, a Berthelot bomb calorimeter, a spetroscope, etc., can be issued to the student from the stock room when his work demands them.

MUSEUM OF GEOLOGY AND PALEONTOLOGY

The equipment for the purpose of illustrative teaching in geology, paleontology and mineralogy consists of many thousand fossils, casts, and models, a good collection of minerals, specimens of all the important building stones, and Ward's College collection in Paleontology, showing the advancement from the early forms of life to those of the present time. The University is situated in the midst of a great coal mining region, within five miles of the western fold of the Appalachian mountains, and oil and gas wells are but a short distance away. The natural facilities for the study of geology are unsurpassed.

THE ZOOLOGICAL LABORATORY

The laboratories devoted to the work in zoology and embryology occupy the third floor of the south wing of Woodburn Hall. The plumbing, lighting, etc., of these rooms were arranged for the special purpose for which the rooms are used. The lecture room is supplied with projection lantern, wall charts, etc. The laboratories

are equipped with high grade microscopes, microtomes, paraffine bath, incubator, and all the other necessary apparatus for general class work. One room is fitted up as a shop and general preparation room. A part of this room has been partitioned off to form a very convenient dark-room. A large reducing and enlarging camera and a Bausch and Lomb microprojection and photographic apparatus make all kinds of photographic work possible. A type collection of animals is located convenient to the lecture room and is gradually being increased. For the work in embryology various series of Ziegler's wax models, embryos, whole and sectioned; dissections, charts, etc., are provided. The bound zoological periodicals and a few of the most frequently used reference books are kept in the laboratory for convenient reference.

THE BOTANICAL LABORATORIES

North Fife Cottage is used exclusively by the Department of Botany. There are two small laboratories on the first floor and an office and general laboratory on the second floor. The laboratories are equipped with microscopes, oil-immersion objectives, dissecting lenses, camera lucidas, microtomes, water baths, paraffin ovens, incubators, sterilizers, autoclave, and some apparatus for plant physiology, besides reagents and glassware.

An abundance of plant material can usually be collected in the immediate vicinity of the University. Additional material is grown in the greenhouse. Many groups of West Virginia plants are exceptionally well represented in Professor Sheldon's private collection. There are also several thousand specimens in the herbarium of the Experiment Station.

In the libraries of the University and Experiment Station are a number of current botanical publications and bound volumes, texts, works of reference, monographs, and bulletins on botany and related subjects.

OTHER LABORATORIES

A more detailed description of the various engineering and agricultural laboratories as well as of the hygiene laboratory of the State Board of Health and of the laboratories of the School of Medicine will be found in connection with the announcements of these departments on later pages of this catalogue.

MILITARY TRAINING

Military Training is prescribed for all regular students in the University below the rank of junior unless such students are more than twenty-three years of age upon their entrance to the Univers-

ity. Certain exceptions to this requirement are stated in full in the detailed announcements of the Division of Military Science.

Students who secure appointments as state cadets are exempt from the payment of tuition or matriculation fees and are at no expense for use of text books. Enrollment in the Division of Military Science or appointment as a state cadet does not render the student liable for military service either to the State or to the United States government.

PHYSICAL TRAINING

Gymnasium

For the physical training of students, opportunities are offered by the gymnasium. It is furnished with an anthropometric equipment, baths, dressing room, lockers, and all kinds of apparatus usually found in gymnasiums. In all the work the aim is to develop health, strength and vitality, and such special exercises are prescribed as may be necessary to symmetrical development.

The gymnasium for women is located in the basement story of Woodburn Hall. It is provided with dressing room, baths, and new and adequate equipment.

Athletics

The department of athletics, as now organized, is under the supervision of a director. Football, baseball, basketball, track and tennis teams are organized and trained each season. Two field days are held annually, one in the fall and one in the spring. All University athletics are under the control of the athletic board. This board is composed of the director of athletics, two other members of the University faculty, two alumni of the University, and two students. All questions as to the eligibility of candidates for University athletic teams are in charge of the University faculty. The University is a member of the National Collegiate Athletic Association.

UNIVERSITY FEES AND EXPENSES

In the College of Arts and Sciences, the College of Engineering and in the College of Agriculture, tuition is free to West Virginia students. For students not residents of West Virginia the tuition fees are $30.00 for semester, or $50.00 per year.

In the College of Law and the School of Medicine the tuition fees are $15.00 per semester, or $25.00 per year, for resident students, and $30.00 per semester, or $50.00 per year, for non-resident students.

The matriculation fee is $5.00, payable upon entering the University by all students except cadets and those whose work is exclusively in music.

The contingent fee is $3.00 per semester, payable by all students except cadets.

The athletic fee is $2.50 per semester, payable by all students except those whose work is exclusively in music.

A fee of $2.00 each semester is charged for registration and the issuance of class cards. This fee is remitted to all students who procure class cards during the first two days of the first semester, and the first day of the second semester. It is exacted in all other cases. Students whose work is exclusively in music are excused from payment of the $2.00 registration fee.

Class officers will issue class cards only on presentation of the receipt for the above fees, signed by the registrar and financial secretary.

The diploma fee is $5.00, payable by all students at the beginning of the semester in which they expect to receive their degree or diploma.

A fee of $1.00 is charged for furnishing a copy of a student's record in the registrar's office after the regular semester reports have been issued.

Students in laboratory courses pay special fees to cover the cost of materials used. The amount of the fee is stated in the announcement of the course.

Each cadet upon entering the corps must pay $17.50 for a uniform.

Refunding of Tuition and Fees

Students who withdraw from the University for good and sufficient reasons during the first two weeks of the semester, will have their tuition refunded upon making application to the registrar but matriculation, contingent, athletic and registration fees will not be refunded.

Students who have paid tuition for the year and who for any reason cannot attend during the second semester, may have the excess paid above the amount of one semester's tuition refunded, upon application to the registrar.

Students who receive appointments as state cadets after the payment of tuition and fees, but before the first nine weeks of the semester have elapsed, may have refunded to them all tuition and fees not properly chargeable to state cadets.

BOARD AND LODGING

Board and lodging together may be obtained in Morgantown for $3.50 per week. Most students, however, pay from $3.75 to $5.00 per week. Furnished rooms may be obtained in private families at from .75 to $1.50 per week, with two in a room. Board in students' clubs costs from $2.75 to $4.00 per week; in private families, from 3.00 to $4.00. The minimum rates here stated are those obtainable at the Men's Co-operative club.

ESTIMATED EXPENSES FOR A YEAR OF NINE MONTHS

Room rent	$ 27.00	to	$ 54.00
Board	90.00	to	144.00
Laundry	10.00	to	18.00
Text-books	8.00	to	30.00
Contingent and atheltic fees	6.00	to	11.00
	$150.00		$257.00

To this estimate must be added matriculation, tuition, diploma, and laboratory fees, in the case of students who are required to pay them, traveling expenses, clothing, and miscellaneous expenses, which depend largely upon the tastes and habits of individual students.

Text-books are kept for sale in the University book store.

State cadets are furnished their text-books and stationery free and are exempt from the payment of matriculation, contingent, and tuition fees.

ADMISSION TO THE UNIVERSITY

METHODS OF ADMISSION.

Students are admitted to the University either by examination or on certificate from an accredited preparatory school. In the latter case the certificate must set forth the work of the student in detail. Diplomas or certificates of a general nature will not be accepted.

Candidates for admission to the University must present certificates of good moral character and, if from other colleges or universities, must present letters of honorable dismissal.

Candidates for admission who come from other institutions of learning without letters of honorable dismissal may, at the discretion of the registrar, be allowed to register provisionally. In every such case, the registrar will himself make immediate inquiry of the institution from which the applicant comes concerning his standing as a student in that institution. If a certificate of honorable dismissal cannot be obtained, the registration will be cancelled and all fees paid by the applicant will be returned.

The course of procedure above described will be followed also in cases of students from accredited schools, who offer themselves for matriculation without the regular certificates as prescribed above.

ENTRANCE CREDITS

The requirements for admission to the various colleges of the University are stated in terms of units.

A unit in any subject represents the amount of work that may be done in a standard high school in a year of thirty-six weeks, with five recitation periods of forty-five minutes each, per week. In courses where laboratory work is required, from two to three hours of laboratory work is considered the equivalent of one hour recitation, according to the amount of outside preparation required in connection with such work.

Certificates of entrance credits must be on the blank form prescribed by the committee on classification and grades, or on a similar form, so that credit values, in units, may be readily computed.

The chairman of the committee, or any member acting in his stead, may list and certify the credits of any applicant for admission to the University when such credits are from an accredited school and in proper form, and are of sufficient value in units to entitle

the applicant to classification as a freshman, or first year classman. Certificates from schools not on the accredited list must be approved by the committee.

MATRICULATION AND REGISTRATION

In order to gain admission to the University, the student must first report at the registrar's office in Woodburn Hall. A blank will be furnished, which, on being signed will be presented to the registrar. That officer will then assign the student to a class officer and will certify to the financial secretary the fees, if any, which are to be paid. On the payment of these fees, the student will be assigned to the proper classes by his class officer. No student is permitted to become a member of any class until his registration is completed.

All students are required to register at the beginning of each semester.

SPECIAL STUDENTS

Persons who do not desire to become candidates for a degree, may, by permission of the committee on classification and grades, be admitted as special students, subject to the following provisions:

1. Special students must as a rule be twenty-one years of age or over.

2. Special students must satisfy at least nine units of the requirements for admission, including two units of English.

3. Every application for admission as a special student must be in writing, and must set forth fully the applicant's reasons, together with a detailed statement of the studies he desires to pursue.

4. Special students are subjected in all respects to the usual rules relating to registration and scholarship. They may be assigned to classes for which they apply, it being understood, however, that admission to any class rests entirely with the instructor in charge and further, that admission to any class when so granted does not necessarily imply credit for prerequisites.

5. Special students shall not have their work certified for credit to any other institution, but a general statement of work done may be given if applied for; in every case, this statement shall show that the work was done under registration as a special student, and in case the full requirements for admission to the University have not been satisfied, the statement shall set forth the fact.

CONDITIONAL ADMISSION

Persons who lack not more than two units of the regular entrance requirements of any college in the University may register as conditioned freshmen or first year men in that college.

Persons who lack not more than four units of the regular entrance requirements of any college are permitted to enter certain courses offered in the University for the purpose of securing the credits which are deficient. The courses available under this provision are some elementary college courses in language, history, science, and mathematics, which may be offered either for entrance or college credit, and also courses A and B in English and course 1 in algebra (Mathematics 1). For each of the last three courses named, a half unit entrance credit will be given. Students who are alowed to enter with deficient credits will be subject to rules 4 and 5 given above for special students.

ADVANCED STANDING

All applications for advanced standing in college work must be made to the committee on classification and grades not later than two weeks after the applicant's registration. When certificates of work done elsewhere are offered, the committee will consider them, and, if they are adjudged sufficient, the credits they call for will be certified to the registrar by the chairman of the committee. If no certificates are offered, or those offered are not considered sufficient for the credits asked, the applicant will be sent by the committee to the heads of the departments in which credit is sought, who will report, after examination, to the committee, on the form furnished, the numbers, names, and values of the courses, if any, for which the applicant is entitled to credit. The applicant shall, at the discretion of the committee, have the privilege of presenting his certificates to the heads of the departments, who may give them such recognition in connection with the examination as they see proper. When the credit to be given, if any, has been determined, it shall be reported by the head of the department to the chairman of the committee, on the form provided, always under seal, and in no case must information of such credit be given to the applicant before the report has been sent to the committee. Before credits in this way are certified to the registrar, all certificates must be returned to the chairman of the committee, and by him placed on file.

RULES GOVERNING CLASSIFICATION AND SCHOLARSHIP

THE CLASS OFFICER

The duties of the class officer are as follows:

1. To assign the student to proper courses, and see that prescribed work is taken in order.

2. To supervise the selection of elective courses by the student.

3. To keep a record of the work done by the student and to recommend him for his degree or diploma when the work is completed.

4. To have general oversight of the student's college life. The student will look to his class officer for advice and guidance in all matters pertaining to his work. Withdrawal from classes, changing from one class to another, etc., will always require the class officer's consent.

CREDITS

1. A credit or semseter-hour represents the amount of work done in one semester (eighteen weeks), in one recitation hour with two preparation hours a week. From two to three hours of laboratory work is considered equivalent to an hour of recitation, according to the amount of outside work assigned in connection with the laboratory hours.

2. No course for which a credit has already been given shall be counted toward the minimum number of credits prescribed for a semester's work in any college, unless by special permission of the committee on classification and grades.

3. The committee will consider the question of granting permission to any student to take more than the maximum amount of work permitted as a semester's work in any college only on the presentation of a petition approved and signed by the class officer, and accompanied by a statement of the student's record for the preceding quarter. Such petition must be presented within seven days after the day set in the catalogue for the opening of the semester.

4. Fewer than ten hours in an ancient or modern language will not be counted toward any University degree, diploma, or certificate.

CLASSIFICATION

1. No student shall be classified as a freshman or first year student who is conditioned in more than two units or entrance requirements.

2. The number of courses required for classification as a sophomore or second year, junior or third year, and senior or fourth year student varies in the different colleges. (See announcements of the colleges in subsequent pages).

3. Classification of students for publication in the catalogue will be made on the basis of the work to their credit on November 1 of each year, except in the case of students entering later in the year.

CLASS STANDING AND EXAMINATIONS

1. System of Grading.—Students are graded on a scale in which one hundred per cent. is regarded as perfect and seventy per cent as a passing grade.

2. Absences.—Punctuality in attendance and attention to the work of the class room will be given much consideration in determining the class standing of the student. Every unexcused absence will effect a reduction of one per cent. in the student's final grade for the course. All excuses for absence except as noted in the paragraph following, should be made to the registrar.

In case of absences at the beginning of either semester a deduction of two per cent. from the final grade in every subject shall be made for each exercise missed, for all absences not more than seven in number, unless such absences are excused by the committee. If the absences are more than seven in number, full credit for the course will not be given, unless such absences are excused by the committee and the work missed made up to the satisfaction of the instructor. Excuses for such absences must be presented to the committee on special blanks furnished for that purpose.

3. Withdrawal from a Class.—The permission of both class officer and instructor shall in all cases be necessary for the withdrawal of a student from any class or for his transfer from one class to another. After the first six weeks of the semester have elapsed the permission of the committee on classification and grades must also be obtained. If a student discontinues a course without permission his standing in that course shall be reported to the registrar as zero.

4. Mid-semester Reports.—Each instructor is required to make a mid-semester report of the standing of all students in his classes. The standing of the student as it appears in this report is based on the daily recitation grades and on a special test given during one or more of the regular recitation periods. These reports will be made to various class officers on the "Day for Mid-semester

Reports" as announced in the calendar. The class officers will forward the reports to the registrar within two days. Any student whose average standing in all studies as shown by the mid-semester report is less than fifty per cent. will be suspended from the University for the remainder of the semester.

5. **Examinations and Final Grades.**—In practically all the courses offered in the University a written examination is required at the end of the semester. Both the class standing and the examination grade of the student are considered in making up the final grade. These final grades must in all cases, except in case of unavoidable absence from examination as provided in rule 6, be reported at the end of the semester and not held over by the instructor to a later time or reported as incomplete. Reports of final grades are to be made on the class cards presented by the students at their entrance to the course and are to be sent to the various class officers, who will report them in turn to the registrar.

6. **Absence from Examination.**—If the student attends the course throughout the semester and is absent from examination, without permission, the instructor shall count the examination as zero, and report the final grade as one half the recitation grade. If the student is unavoidably absent from examination, and has a recitation grade of eighty-five or over, the instructor may report the recitation grade as the final grade in the subject. If the recitation grade is under eighty-five, and the absence from examination is for reasons satisfactory to the instructor, the fact will be recorded on the card returned to the class officer, and the student shall have the privilege of taking the examination at a later time.

7. **Conditions and Failures.**—If the final grade of any student for any course is below sixty, it shall be recorded as a "failure," and the student must take the course again if he desires credit for it. If the final grade is sixty, or over, but below seventy, it shall be recorded as a "condition," and the student shall have the privilege of a second examination, which must be taken at the time designated by the instructor. A card entitling the student to this second examination will be issued by the registrar and must be applied for not later than ten days after the opening of the succeeding semester. A condition not removed within the semester following the one in which it was imposed becomes a failure. If the final grade after a second examination is again below seventy, it shall be recorded as a "failure."

8. **Suspensions.**—Any student whose standing in courses amounting to eight or more semester hours is less than sixty per

cent. or who fails to make an average standing of sixty per cent. in all of his courses for any semester, shall be suspended from the University for the succeeding semester. If, however, the failure as above is due to the abandonment of any class, or withdrawal from the University without permission, or to absence from examination without reasonable excuse, the suspension shall be indefinite. If a student suspended for any semester by the operation of this rule re-enters the University and again becomes subject to it, his suspension shall be indefinite.

The committee on classification and grades will relieve any student from the operation of this rule for satisfactory reasons. The student asking for relief must, when possible, appear before the committee in person; a statetment from the student's class officer and instructors concerned will also be required.

9. Reports.—A report of each student's work is made at the close of each semester, either to the student himself or to his parent or guardian. A complete record is also kept in the registrar's office. The fee for making a copy of this record after the semester reports have been sent out is one dollar.

In cases where a student's work is unsatisfactory as shown by the mid-semester test, a mid-semester report will also be made both to the parent or guardian and to the student.

WORK DONE OUT OF RESIDENCE

The doing of work out of residence is discouraged. In case of courses begun at the University and not completed by reason of illness or otherwise, however, permission to complete the work in absentia under direction of the regular University instructors may be granted by the committee on classification and grades; but in such cases credit shall be given only upon report of a grade of not less than eighty per cent. on final examination.

DEGREES

All University degrees are conferred by the State Board of Regents upon recommendation of the University faculty. Degrees are granted only once in each year, at the annual University commencement.

The names of all students who are to appear as candidates for degrees in any year must be reported by their respective class officers to the committee on classification and grades not later than the beginning of the second semester.

BACCALAUREATE DEGREES

The University confers the following baccalaureate degrees: Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Science in Mechanical Engineering (B.S.M.E.), Bachelor of Science in Civil Engineering (B.S.C.E.), Bachelor of Science in Electrical Engineering (B.S.E.E.), Bachelor of Science in Engineering of Mines (B.S.E.M.), Bachelor of Science in Agriculture (B.S.Agr.) and Bachelor of Laws (LL.B.) No bachelors degree will be conferred upon a candidate who has not done at least the last thirty hours of his work while in actual attendance at the University. The special requirements and conditions under which a student is admitted to candidacy for a bachelor's degree in each college are stated in the announcements of that college.

GRADUATE DEGREES

The University does not confer the degree, Doctor of Philosophy, but will certify to other institutions such graduate work as may be applicable toward this degree.

The University confers the following master's degrees: Master of Arts (M.A.), Master of Science (M.S.), Master of Science in Mechanical Engineering (M.S.M.E.), Master of Science in Civil Engineering (M.S.C.E.), Master of Science in Electrical Engineering (M.S.E.E.), Master of Science in Engineering of Mines (M.S.E.M.), and Master of Science in Agriculture (M.S.Agr.). A master's degree is conferred upon the following conditions.

Candidacy.

1. A candidate for a master's degree must hold a bachelor's degree from West Virginia University or from another institution in which the requirements are substantially equivalent. He must have completed all the essential requirements for the bachelor's degree corresponding to the master's degree for which he applies and have completed the prerequisites necessary to pursue his major subject.

Seniors in the colleges of West Virginia University who have completed the work for the bachelor's degree but who have not yet received the degree may have work credited toward the master's degree at the discretion of the committee on graduate work.

2. The applicant must also inform the committee on graduate work of his choice of a major subject and submit a general outline of his proposed course of study.

NOTE:—Students desiring to be admitted as candidates for a master's degree are advised to make application either in person or

by letter to the chairman of the committee on graduate work some weeks prior to the opening of the semester in which they wish to begin their work.

The Special Committee.

If the student is accepted as a candidate for the master's degree the committee on graduate work will appoint a special committee of three professors, including the professors in charge of the work in the candidate's major and related subjects, whose duties shall be: (a) to arrange a specific course of study; (b) to act as advisors; (c) to examine and pass upon the thesis should one be required; and (d) to conduct the final oral examination.

Requirements for the Degree.

1. **Term of Residence.** A candidate must pursue studies in residence at the University for at least two regular semesters or for one regular semester and two summer sessions of nine weeks each.

2. **Course of Study.** The candidate must present thirty-two hours of graduate work, which at the discretion of the department in which he has chosen his major subject may or may not include a thesis. At least ten hours shall be in the candidate's major subject and any remaining hours in subjects related to the major subject. Courses primarily designed for graduate students are indicated in the catalogue but other advanced courses and special research courses not listed in the catalogue may be credited with the approval of the committee on graduate work.

No work done before the completion of the work required for the bachelor's degree will be credited toward the master's degree unless the work has been approved by the special committee.

The specific course of study must be presented to the Committee on Graduate work for its approval within two weeks after the acceptance of the student's application.

3. **Thesis.** A statement of the general subject of the thesis, with the written approval of the chairman of the special committee, must be furnished to the committee on graduate work within six weeks after the acceptance of the student's application. The thesis shall show acceptable investigation in the major subject. It shall be prepared under the direction of the department in which the student has chosen his major and shall be submitted for approval to the special committee at least four weeks previous to the commencement day at which the degree is expected. The thesis shall be presented in such form as may be prscribed by the committee on

graduate work. . If the thesis is approved, two typewritten or printed, bound copies shall be deposited in the University Library at least one week before the degree is conferred.

4. **Final Examination.** The final examination of the candidates shall be oral and shall cover the major and related courses and thesis, or such part thereof as the special committee may deem desirable. This examination shall be open to the public and shall be held at least three weeks before the commencement day on which the degree is expected. The committee on graduate work shall delegate one of its members to attend the examination.

8. The special committee shall report their opinion of the thesis and the result of the examination of the candidate to the committee on graduate work at least ten days before commencement.

NOTE:—Since the principal aim of graduate study is the development of the knowledge necessary to do independent work and the promotion of the spirit of research, each candidate for a degree is expected to have a wide knowledge of his subject and of related fields of work and to pursue a course of related reading and study in addition to his University work.

WITHDRAWAL FROM THE UNIVERSITY

A student desiring to withdraw from the University must apply to the President for permission. When the withdrawal permit has been secured it must be presented by the student to his class officer who will forward it to the registrar. Students who withdraw from the University without permission will have their grades reported as zero at the end of semester and will then be liable to indefinite suspension as stated in Rule 8 above.

GENERAL INFORMATION

DISCIPLINE

The rules and regulations which students are required to observe are few, simple, and reasonable:—civil and orderly conduct; punctuality and regularity in attendance upon all required exercises; reasonable diligence in the performance of the work prescribed, and abstinence from drinking, gambling and like gross vices.

Students who do not comply with these requirements will not be allowed to remain in the University.

All matters of discipline are in charge of the President of the University in consultation with the dean of the college or head of the division of the University in which the student concerned is enrolled.

THE CONVOCATION

The University Convocation is held weekly on Wednesday morning at ten o'clock in Commencement Hall. No classes or other University exercises are held at this hour and opportunity is afforded for all members of the University, both instructors and students, to attend the weekly meeting. The hour is occupied by lectures and addresses, discussion of student interests and problems, and the consideration of questions relating to the general University welfare.

In connection with the weekly convocation brief devotional exercises are usually held under the direction of the Chaplain of the University. The singing at these exercises is in charge of the Director of the School of Music. Attendance is entirely voluntary.

CHRISTIAN ASSOCIATIONS

The Young Men's Christian Association is organized for the purpose of cultivating the best social and spiritual atmosphere in the University, and training the students in lines of practical service. Regular devotional meetings are held every Sunday afternoon at 4:30 in Commencement Hall.

Membership in the association is open to all men in the University and is obtained upon the presentation of an application by the student. A yearly membership fee of $2.00 is charged.

The administrative policy of the Association is directed by an advisory board, composed of members of the faculty, business men of the town, alumni and students. A general secretary is employed, who gives his full time to the work. The Y. M. C. A. Office and Reading Room is in Woodburn Hall. Mr. F. B. Lewellyn is the present secretary.

Membership in the Young Women's Christian Association is open to all young women of the University. Regular devotional meetings are held every Sunday afternoon at 4:30 p. m. in the Women's Parlor in Woodburn Hall.

Systematic courses in Bible Study are offered, both for men and for women, which cover the four years of college life. The classes are small in size, informal in character and give opportunity for friendly, informal discussions of religious problems and personal convictions. Special courses are also offered in the study of Christian missions and social service. Delegates are sent each year from each association to the State and International Student Conventions.

PHI BETA KAPPA

The Alpha of West Virginia Chapter of the Phi Beta Kappa Society is established at the University. Stated meetings or public exercises of the Society are held twice annually; the Anniversary meeting on December 10, and the Annual meeting during Commencement Week. The honor of membership may be conferred upon candidates for the degree of Bachelor of Arts who have maintained a high scholarship rank during their college course; also upon members of the faculty and instructional staff of the University and upon alumni of any college in the University. The president of the chapter for the year 1914 is Professor David Dale Johnson; the secretary, Professor W. E. Dickinson.

STUDENT ORGANIZATIONS

The faculty committee on social affairs exercises a general oversight over the social activities of the student body. There are in the University various societies and clubs, devoted chiefly to the educational, social and athletic interests of the students. Several Greek letter fraternities and sororities have established chapters at the University and most of these occupy their own chapter houses. A faculty committee on fraternities acts as a medium of communication between these fraternities and the University.

Some of the more important of the student organizations are:

1. The Columbian Literary Society. Regular meetings every

Friday night in its own hall in Martin Hall. Membership open to all students of the University.

2. The Parthenon Literary Society. Regular meetings every Friday night in its own hall in Martin Hall. Membership open to all students of the University.

3. The University Dramatic Club. The purpose of this organization is to stimulate an interest in literary and dramatic work in the University. This is accomplished through the practical and systematic study of standard plays, and through the public presentation of at least one play in each college year. All University students are eligible to membership in the Dramatic Cub, but those desiring to enter must pass a series of tests under the direction of the professor of public speaking.

4. The Choral Society. Regular meetings every monday at 7:30 p. m. in Commencement Hall. Membership open to all students in the School of Music and all others interested.

5. The Students' Publishing Association. Organized for the purpose of publishing the college papers. At present there are published the Athenaeum, a weekly newspaper, and the Monongalian, a quarterly literary magazine. The College Annual, The Monticola, is published by the Junior class. All student publications are under the supervision of a faculty committee on student publications.

6. The Engineering Society. Regular meetings the first and third Friday nights of each month in its room in Engineering Hall. Membership open to all students in the College of Engineering and Mechanic Arts.

7. The University Grange, Number 373, Patrons of Husbandry. Regular meetings on alternate Wednesday evenings. Membership open to all students in the College of Agriculture and to others who may be elected.

8. The English Club. Regular meetings on the first Thursday night of every month.

9. The Beowulf Gedriht. Regular meeting in October, November, February, April and May. Open to all members of the University upon the fulfillment of certain scholarship qualifications.

10. The Agricultural Association. An organization of the students of College of Agriculture to promote their general interests. Meetings on first Thursday of each month.

11. The Phil-hellenic Club. Membership open to all students of Greek. Regular meetings once each month.

WOMEN'S STUDENT GOVERNMENT ASSOCIATION

All women students of the University whose homes are not in Morgantown, whether they live in the Women's Hall or in rooming houses in town are members of the student government association. The purpose of this association is to regulate all matters pertaining to the student life of its members, to further in every way the spirit of unity among the women of the University, to increase their sense of responsibility and to be a medium for maintaining a high social standard.

The association has the following officers: a president and a vice-president elected from the senior class; a secretary elected from the sophomore class; and a treasurer elected from the freshman class. The vice-president is also house president. These four officers together with one representative from each sorority, an equal number of non-sorority members, one member from the Young Women's Christian Association, and one from the freshmen class constitute the executive board in which is vested the administration of the association. This board is responsible to the faculty advisory board of the association for all matters pertaining to the social life of the students.

The advisory board consists of the dean of women and two other members of the faculty appointed by the president of the University.

The Dean of Women

All the interests of the women students of the University are in charge of a special executive officer of the University, the Dean of Women. She is a member not only of the advisory board of the student government association but also of the faculty social committee. Thus she is cognizant of all social activities engaged in by women students. The dean is a resident of the Women's Hall where she comes into intimate personal relation with the young women and has immediate supervision of their social life.

PRIZES

All contestants in any University contests in oratory, declamation, or debate, must have received credit for at least three hours in public speaking.

No composition, in whole or in part, shall be submitted in competition for two prizes.

Only students pursuing courses leading to baccalaureate degrees are eligible for any prize offered.

No student shall be eligible to enter any contest who has not been a resident student in this University for at least one semester preceding the semester in which the contest is to be held. and who is not a resident student in good standing in the University in the semester in which the contest is held.

No successful contestant may become for a second time a competitor for the same prize.

If in any contest there are fewer than two competitors, no prize will be given in that contest.

Students intending to compete in any essay-writing contest must notify the chairman of the committee on public exercises not later than March 15. Three typewritten copies of each essay must be in the hand of the chairman of the committee not later than May 15.

The conditions upon which the awards in the several contests are made may be learned upon application at the President's Office, or to the members of the committee on public exercises.

I. The American Law Book Company Prize

The American Law Book Company of New York offers as a prize for the best essay on some subject in law by any student in the College of Law a set of the Cyclopedia of Law and Proceedure in twelve volumes. The subject of the essay and the conditions governing the contest for the prize will be announced by the faculty of the College of Law.

II. The Callaghan and Company Prize

The law publishing firm of Calaghan and Company of Chicago offer as a prize for an essay writing contest similar to that described above a copy of the Cyclopedic Law Dictionary. This contest is also open to any student in the College of Law.

III. The Bryan Prize in Political Science

The Hon. William J. Bryan has given a sum of money, the annual income of which is to be offered as a prize to the student in the University who shall write the best essay on some subject in the science of government. The amount of the prize for the present is fifteen dollars. The subject for 1914-15 is, "Should the 'Monroe Doctrine' be Maintained?"

IV. The Tax Commission Prize

The members of the State Tax Commission of 1902, W. P. Hubbard, Henry G. Davis, John K. Thompson, L. J. Williams, and J. H. Holt, have donated the sum of $1,350, the income of which is

to be used as prize for the "best original work bearing on matters of taxation in West Virginia." The conditions of competition are determined by the Council of Administration. The amount of the prize at present is $70.00. The subject for 1914-15 is, "Is the 'Single Tax' feasible as a system of taxation in the United Sttaes?"

V. The Russell Love Morris Prize in Civil and Mining Engineering

Russell Love Morris, C.E., Professor of Civil Engineering, offers a prize of fifty dollars annually to the student of civil engineering who presents the best thesis on some subject of special application to the needs and resources of West Virginia.

VI. The Collegiate Alumnae Prize for Scholarship

For the year 1913-14 The Morgantown Chapter of the Collegiate Alumnae Association, an organization of women college graduates, offers a prize of twenty-five dollars to the young woman freshman who shall attain to the best scholastic standing in her freshman year. No other activities are to be considered. This prize is for scholarship.

THE MEN'S HALL

The Men's Boarding Hall is situated at 52 University Driveway. There are rooms for the accommodation of from twenty to twenty-five young men and dining-room accommodations for fifty. The hall is now in charge of the Students Co-operative Club.

THE WOMEN'S HALL

The Women's Hall and annex are centrally located at the corner of Willey and Spruce streets, and will accommodate between forty and fifty young women. Miss Susan Maxwell Moore, Dean of Women, is in charge of the Hall. Anyone desiring information as to prices, or available rooms in the halls, should apply to Miss Moore.

BOARDING AND ROOMING PLACES

The matter of furnishing information to new students regarding suitable boarding and rooming places is in charge of the Y. M. C. A. and Y. W. C. A. of the University On their arrival in Morgantotwn new students should come directly to Woodburn Hall where they will find complete lists of rooms and boarding places and also upper classmen who will help them in finding lodgings and in matriculating. During the opening days of the semester committees

from the two Christian Associations meet new students at trains and are ready to render them every assistance possible.

Young men desiring information in advance of their arrival in Morgantotwn may address the University Y. M. C. A., Morgantown, W. Va. Young women may address Miss Susan M. Moore, Dean of Women.

THE UNIVERSITY WATER SUPPLY

Special attention is given by the University to the providing of a sanitary supply of drinking water for its students. An examination of the drinking water is made at intervals by the department of bacteriology. The latest report of such analysis is as follows:

President Thos. E. Hodges,
Dear Sir:

A bacteriological examination of the water takeen from the fountain in Woodburn Hall on January 8, 1914, showed it to be free from bacteria of the Colon group, and safe for drinking purposes.

Respectfully,
A. ARKIN.

AID FOR STUDENTS

The Employment Bureau, organized by the University Y. M. C. A., undertakes to assist earnest and worthy students who are dependent upon their own efforts for the expenses of their education, to obtain various forms of employment in Morgantown. Prospective students desiring such aid should correspond with Frank B. Lewellyn, Secretary of the Y. M. C. A., before entering the University, stating the kind of work desired and the nature of past experience in any occupation. The work consists largely in waiting table, caring for rooms and lawns, clerking in stores, stenographic services, etc.

ACCREDITED PREPARATORY SCHOOLS.

In accrediting West Virginia high schools the University follows the classification made by the State Supervisor of High Schools who is also Professor of Secondary Education in the University. Graduates and students of high schools recommended by him are received without examination so far as properly certified credits meet the special requirements of the particular college or school of the University which they desire to enter.

High Schools of the first class are supposed to offer sufficient work to enable their graduates to enter any college of the University. Graduates of schools of the second and third classes receive credit for the work certified with the understanding however that no student may enter any college of the University with fewer than eleven units credit.

Graduates of the State Normal Schools and of all other schools in good standing will receive credit for work properly certified.

The classification of schools published by the State Supervisor of High Schools is as follows:—

CLASSIFIED HIGH SCHOOLS—1913-14.

High Schools of the First Class.

Academy, Pocahontas County.
Benwood, Marshall County.
Berkeley Springs, Morgan County.
Bluefield, Mercer County.
Bridgeport, Harrison County.
Buckhannon, Upshur County.
Cairo, Ritchie County.
Cameron, Marshall County.
Ceredo, Wayne County.
Charleston, Kanawha County.
Charles Town, Jefferson County.
Chester, Hancock County.
Clarksburg, Harrison County.
Davis, Tucker County.
Edgington, Ohio County.
Elkins, Randolph County.
Fairmont, Marion County.
Flemington, Taylor County.

Grafton, Taylor County.
Hinton, Summers County.
Huntington, Cabell County.
Keyser, Mineral County.
Kingwood, Preston County.
Mannington, Marion County.
Martinsburg, Berkeley County.
Middlebourne, Tyler County.
Morgantown, Monongalia County.
Moundsville, Marshall County.
Mt. Hope, Fayette County.
New Cumberland, Hancock County.
New Martinsville, Wetzel County.
Oak Hill, Fayette County.
Parkersburg, Wood County.
Parsons, Tucker County.
Piedmont, Mineral County.
Ravenswood, Jackson County.
Ronceverte, Greenbrier County.
Salem, Harrison County.
Shinnston, Harrison County.
Sistersville, Tyler County.
Spencer, Roane County.
Sutton, Braxton County.
St. Marys, Pleasants County.
Terra Alta, Preston County.
Thomas, Tucker County.
Welch, McDowell County.
Wellsburg, Brooke County.
Weston, Lewis County.
Wheeling, Ohio County.
Williamson, Mingo County.
Williamstown, Wood County.

High Schools of the Second Class

Alderson, Monroe County
Belington, Barbour County.
Bramwell, Mercer County.
Burnsville, Braxton County.
Clay, Clay County.
Clendenin, Kanawha County.
Cowen, Webster County.

East Bank, Kanawha County.
Fairview, Marion County.
Farmington, Marion County.
Follansbee, Brooke County.
Harpers Ferry, Jefferson County.
Harrisville, Ritchie County.
Hedgesville, Berkeley County.
Logan, Logan County.
Marlington, Pocahontas County.
Masontown, Preston County.
Milton, Cabell County.
Newell, Hancock County.
Pennsboro, Ritchie County.
Philippi, Barbour County.
Pt. Pleasant, Mason County.
Princeton, Mercer County.
Richwood, Nicholas County.
Sherrard, Marshall County.
St. Albans, Kanawha County.
Tunnelton, Preston County.
Union, Monroe County.
Webster Springs, Webster County.
West Milford, Harrison County.
West Union, Doddridge County.

High Schools of the Third Class

Ansted, Fayette County.
Barrackville, Marion County.
Beverly, Randolph County.
Bristol, Harrison County.
Elkhorn, McDowell County.
Eugene, Mingo County.
Fayetteville, Fayette County.
Franklin, Pendleton County.
Gary, McDowell County.
Gassaway, Braxton County.
Holliday's Cove, Hancock County.
Jane Lew, Lewis County.

Littleton, Wetzel County.
Lumberport, Harrison County.
Mason, Mason County.
Newburg, Preston County.
New Haven, Mason County.
North Fork, McDowell County.
Paw Paw, Morgan County.
Peterstown, Monroe County.
Pineville, Wyoming County.
Rivesville, Marion County.
Romney, Hampshire County.
Rowlesburg, Preston County.
Simpson, Taylor County.
Wallace, Harrison County.
Warwood, Ohio County.
White Sulphur Springs, Greenbrier County

High Schools Not Classified

Belmont, Pleasants County.
Burch, Mingo County.
Berwind, McDowell County.
Burlington, Mineral County.
Danville, Boone County.
Elizabeth, Wirt County.
Fort Gay, Wayne County.
Gilbert, Mingo County.
Leetown, Jefferson County.
Matoaka, Mercer County.
Oceana, Wyoming County.
Pruntytown, Taylor County.
Reader, Wetzel County.
Ripley, Jackson County.
Sabraton, Monongalia County.
Spanishburg, Mercer County.
Summersville, Nicholas County.
Walton, Roane County.

SCOPE OF THE ENTRANCE REQUIREMENTS

The following description indicates the extent of preparation expected in each of the several subjects offered for entrance credit for admission to the various colleges of the University.

ENGLISH

Grammar and Elementary English.—No student will receive entrance credit in English whose work shows marked deficiency in spelling, punctuation, grammar, sentence structure, or paragraphing. The student should be prepared to state intelligently the essential principles of English grammar and to explain the syntactical structure of any sentence encountered in his reading. An elementary text-book on grammar should have been completed before the student enters upon his high school course. For more advanced study of the subject and for practical review, the material presented in the ordinary high school text-books on rhetoric may be utilized. The subject should be constantly reviewed in connection with the work in composition during the four years in the high school course.

Rhetoric and Composition.—Systematic practice in theme writing and other forms of oral and written composition with instruction in the principles of rhetoric and the forms of discourse must form an important part of each unit of English. At least one theme weekly should be required throughout the course. Students who are not able to express themselves in clear, correct, and idiomatic English will not be given full credit. The subjects upon which the student writes should not be drawn exclusively from literature. A considerable portion of them should be so distributed as to give proper training in the various forms of discourse.

The three units in English should include the following:

(a) One unit. English Classics and English Composition. The thorough study of at least five English classics selected from the list below. The simplest narrative classics, both prose and poetry, should be selected. The aim of the work should be to stimulate interest in good literature and to enable the student to form vivid mental pictures and to understand fully the thought expressed. The aim of the composition work should be to secure facility and accuracy. The work should include letter writing, short themes in narration and description, and study of paragraphing and sentence structure.*

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*Reading of good literature outside of class and memorizing of notable passages in prose and verse should be required, but outside reading accompanied by written reports or reviews made according to a stereotyped model, in place of a thorough study of assigned lessons, class instruction and discussion will not be considered as satisfactorily fulfilling the requirement of any unit.

(b) One unit. English Classics and English Composition. Thorough study of five other English Classics. The work should include more complex forms of fiction and narrative poetry, simpler essays, and at least one of Shakespeare's plays. The aim should be to make a study of form, structure, style, and purpose of the selection; the author's life; relation of the selection to its age and to other works of similar type. The work in composition should include themes of moderate length in all forms of discourse; study of unity, coherence, and emphasis in sentences and paragraphs; kinds of sentences; diction; figures of speech.

(c) One unit. Advanced study of Classics; Rhetoric. A thorough and intensive study of the form, structure, and style, of at least one typical example of the novel, the drama, the lyric or epic poem, and the essay. A study of the principles of rhetoric, employing some good advanced high school text-book, with frequent and systematic theme writing must form a part of this unit.

The following list of classics is suggested for reading and study:

For the first unit: Longfellow's Evangeline and Courtship of Miles Standish; Whittier's Snow Bound; Lowell's Vision of Sir Launfal; Coleridge's Rime of the Ancient Mariner; Macaulay's Lays of Ancient Rome; Goldsmith's Deserted Village; Irving's Sketch Book; Hawthorne's Twice Told Tales; Franklin's Autobiography; Aldrich's Story of a Bad Boy; Warner's Being a Boy, A Hunting of the Deer, etc.; Burrough's Sharp Eyes, Birds and Bees, etc.; Dickens' Christmas Carol; Stephenson's Treasure Island.

For the second unit: The Bible; Scott's Lady of the Lake, Marmion, Ivanhoe, Quentin Durward; George Eliot's Silas Marner; Goldsmith's Vicar of Wakefield; Mrs. Gaskell's Cranford; Cooper's Last of the Mohicans; Blackmore's Lorna Doone; Dickens' Tale of Two Cities, David Copperfield; Arnold's Sohrab and Rustum; Byron's Mazeppa and the Prisoner of Chillon; Shakespeare's Merchant of Venice, As You Like It, Julius Cesar, Twelfth Night; Addison's De Coverly Papers; Thoreau's Succession of Forest Trees; Stevenson's Island Voyage.

For the third unit: Novels: Thackeray's Henry Esmond; George Eliot's Silas Marner or Romola; Jane Austen's Pride and Prejudice; Hawthorne's House of Seven Gables. Dramas: Shakespeare's Macbeth, Lear, or Henry V. Poems: Tennyson's Idylls of the King; Milton's Shorter Poems; Browning's Selected Poems; Palgrave's Golden Treasury. Essays: Lamb's Essays of Elia; Emerson's Essays; Ruskin's Sesame and Lilies; Carlyle's Heroes and Hero Worship, Essay on Burns; Macaulay's Essay on Addison and Life of Johnson; Washington's Farewell Address; Webster's Bunker Hill Oration; Lincoln's Gettysburg Speech, etc.

LATIN

(a) One unit—Such knowledge of inflection and syntax as is given in any good preparatory Latin book, together with the ability to read easy selections from Cæsar.

(b) One unit—Four books from Cæsar's Gallic War, or its equivalent in Latin of equal difficulty. The ability to write simple Latin based on the text.

(c) One unit—Six orations of Cicero. The ability to write simple Latin based on the text. The simpler historical references and the fundamental facts of Latin syntax.

(d) One unit—Six books of Virgil, with history and myth-

elogy. Scansion of hexameter verse. Two of the three prescribed units to be offered must be (a) and (b). Either (c) or (d) may be offered for the third unit, but one year of composition must be included.

GREEK

(a) One unit—Introductory lessons, elements of grammar; easy translations from the Anabasis; translations into Greek of easy continuous prose based upon the Anabasis.

(b) One unit—Xenophon—the first four books of the Anabasis.

(c) One unit—Homer—The first three books of the Iliad (omitting II-494 to end) and the Homeric constructions, forms, and prosody; constant practice in sight translation and prose composition.

GERMAN

(a) One unit—A thorough knowledgo of elementary syntax; constant drill in pronunciation, oral translation, and composition; translation of seventy-five to one hundred pages; advanced syntax; composition throughout the year.

(b) One unit—Modern prose and familiar poems, two hundred pages; advanced syntax; intermediate composition throughout the year.

(c) One unit—Advanced prose, four hundred pages; advanced composition throughout the year.

FRENCH

(a) One unit—(1) The essential principles of French etymology and syntax, and especially, a thorough knowledge of the pronoun and of the regular and irregular verb; (2) ability to write in French, sentences of moderate difficulty; (3) the reading of from one hundred and fifty to two hundred pages of modern French prose; (4) ability to pronounce the language correctly and with some fluency.

(b) One unit—(1) Continued systematic study of French grammar, including syntax; (2) the reading of from three to four hundred pages of modern French; (3) the practice in writing from dictation.

(c) One unit—(1) Twenty pages of advanced prose composition; (2) at least three hundred pages of modern French prose; (3) at least three hundred pages of modern French plays.

HISTORY

From one to three units may be offered, selected from the following:

(a) Ancient History to 800 A. D.—one unit.

(b) Mediaeval and Modern European History—one-half to one unit. The amount of credit will depend upon the time given to the subject.

(c) English History—one-half to one unit. The amount of credit will depend upon the time given.

(d) American History, or American History and Civics—one unit.

The students should be familiar with the important events and should have a clear knowledge of the general development of the period of history which he offers for credit.

A whole year that covers the whole field of general history with a good text-book and with notes on collateral reading and preparation of maps will be accepted as one unit, although it is believed that better results will be obtained by spending a whole year on ancient history and another year on the mediaeval and modern period.

American history and civics should be preceded by English history, and should not be given before the third year in the high school course, in case three years are given to history. Ancient history should be followed by English history in case mediaeval and modern history are not given.

The study of civics must not precede the study of American history; and, if studied as a separate branch following the course in American history, some advanced text such as Forman's Advanced Civics should be used. An outline knowledge of elementary civics, such as is presented in Forman's First Lessons in Civics, or in Peterman's Civics, is presupposed.

MATHEMATICS

(a) Algebra through quadratics—one unit. The four fundamental operations for rational algebraic expressions; factoring, highest common factor, lowest common multiple, complex fractions, solution of equations of the first degree, radicals including the extraction of the square root of polynominals and numbers, fractional and negative exponents, quadratic equations, and equations containing one or more quadratic equations, and problems involving the use of such equations.

(b) Plane geometry—one unit. The completion of any standard text with original exercises and problems.

(c) Algebra—one-half unit. Review of essentials followed by ratio and proportion, the binominal theorem for positive and integral exponents, arithmetical and geometrical progressions .

(d) Solid geometry—one-half unit. Properties of straight lines and planes, dihedral and polyhedral angles, projections, polyhedrons, including prisms, pyramids, and the regular solids, cylinders, cones, and spheres, spherical triangles, measurements of surfaces and solids.

(e) Plane trigonometry—one-half unit. Definitions and relations of the six trigonometrical functions as ratios, proofs of important formulæ, theory of logarithms and use of tables, solution of right and oblique plane triangles.

SCIENCE

(a) Physics—one unit. Credit will be given for one year's work with any standard text book, upon the presentation of a satisfactory note book, covering at least thirty-two experiments. The note book should contain the student's own record of his laboratory experiments and a signed statement from his teacher that the book is the original record of the student's observations. Students deficient in laboratory work may make up this deficiency in the University.

(b) Chemistry—one unit. Credit will be allowed for the completion in a satisfactory manner of any standard elementary text in inorganic chemistry, accompanied by individual laboratory work. A full year should be given to the work.

(c) Botany—one unit.

(d) Zoology—one unit.

Work in either botany or zoology, to be credited, must have been accompanied by individual laboratory work. The exact extent of the work which should be done cannot be stated here, but, for the maximum credit, it should be as much as a competent teacher, trained in laboratory methods, can accomplish in from one, to one and one-half years. In estimating the time employed, two hours of laboratory work will be counted as the equivalent of one recitation period. It will be necessary for applicants to present their laboratory notes and drawings.

In botany the class should cover the ground of Coulter's "A Text-Book in Botany," or Bergen's "Foundation of Botany," or their equivalent.

In zoology the class work should cover about what is represented in Kellogg's "Elementary Zoology" (Henry Holt), or in Parker and Haskell's Zoology, one-volume edition (Macmillan & Co.).

The amount of laboratory work that should be done is somewhat less than is outlined in Scheffer's manual (Blakiston).

(e) Physical Geography—one-half unit.

(f) Physiology—one-half unit.

Credit for one-half unit each in physical geography and physiology will be allowed—as elective only—if taught in a scientific manner in an accredited or recognized secondary school. The use of a standard text should be supplemented by proper illustrative methods and proper observation. One-half year must be given to each subject.

DRAWING

One unit. To receive entrance credit in free hand drawing, instruction should have been designed to give the student an intelligent and accurate conception of form, light, and shade, and the ability to express simply and directly, such objects as natural and geometrical form, still life, architectural details, and casts from nature, the antique, and life.

The training of the eye to observe with understanding, rather than the teaching of any particular method of expression, should be the aim of the instructor. No mechanical aids should be employed. The pencil is recommended as the simplest and most convenient medium for elementary work. It is desirable that students seeking credit for drawing shall submit their work in addition to their general certificate.

AGRICULTURE

One-half to one unit—A study of soils, plants, forage crops, grains, farm animals, feeding, fruit growing, gardening, insects, diseases, etc., with laboratory and field work. Texts of a secondary grade such as Warren's "Elements of Agriculture," "High School Agriculture" by Mayne and Hatch, or "Agriculture through the Laboratory and School Garden" by Jackson and Daugherty, or books of equal grade should be used. Examinations are based on texts of this character and credit will not be given for work done with simpler texts designed for grammar school work.

TEACHER'S BUREAU OF INFORMATION

The Teacher's Bureau of Information, under the direction of the department of education, has for its aim:—

1. To keep a record of the students or alumni of the University who wish to teach, to gather information as to their academic and professional qualifications and personal fitness for school work, and to recommend for vacancies those who seem most likely to prove themselves efficient.

2. To keep a similar record of alumni who wish to be transferred to other positions.

3. To assist boards of education and other school officials in securing teachers, and to cooperate with teachers' agencies in placing graduates of the University.

Students desiring recommendation for positions as teachers should take at least twelve hours in education. Those desiring recommendation for a position in a normal school or as principal or superintendent of schools, should take at least twenty-four hours in education.

No student is assured a position. General letters of recommendation are not given to students. Information obtained from professors and others is regarded as confidential. No charge is made for any services rendered. Blanks for registration will be furnished on application. The following is the committee on recommendation: President Hodges, Dean Trotter, Professor Friend, Professor Crow, and Professor Deahl, secretary.

THE COLLEGE OF ARTS AND SCIENCES

THE FACULTY

THOMAS EDWARD HODGES, A.M., LL.D., *President*

FRANK BUTLER TROTTER, A.M., *Dean, Professor of the Latin Language and Literature*

DANIEL BOARDMAN PURINTON, LL.D., *President and Professor of Philosophy, Emeritus*

JAMES SCOTT STEWART, M.S., *Professor of Mathematics, Emeritus*

POWELL BENTON REYNOLDS, D.D., *Professor of Economics and Sociology, Emeritus*

ALEXANDER REID WHITEHILL, PH.D., *Professor of Chemistry*

SAMUEL B. BROWN, A.M., *Professor of Geology and Mineralogy*

ROBERT ALLEN ARMSTRONG, L.H.D., *Professor of the English Language and Literature*

ALFRED JARRETT HARE, A.M., *Professor of the Latin Language and Literature*

FREDERICK WILSON TRUSCOTT, PH.D., *Professor of Germanic Languages and Literatures*

JOHN LEWIS SHELDON, PH.D., *Professor of Botany and Bacteriology*

JASPER NEWTON DEAHL, PH.D., *Professor of Education and Acting Head of the Department of Philosophy*

JAMES MORTON CALLAHAN, PH.D., *Professor of History and Political Science*

JOHN HARRINGTON COX, A.M., *Professor of English Philology*

FREDERICK LAWRENCE KORTRIGHT, D.SC., *Professor of Chemistry*

JOHN ARNDT EIESLAND, PH.D., *Professor of Mathematics*

ALBERT MOORE REESE, PH.D., *Professor of Zoology*

OLIVER PERRY CHITWOOD, PH.D., *Professor of European History*

C. EDMUND NEIL, A.B., *Professor of Public Speaking*

CHAUNCEY WILLIAM WAGGONER, PH.D., *Professor of Physics*

MADISON STATHERS, PH.D., *Professor of Romance Languages*

WAITMAN BARBE, LITT.D., *Professor of English*

LLOYD LOWNDES FRIEND, A.M., *Professor of Secondary Education*

ENOCH HOWARD VICKERS, A.M., *Professor of Economics and Sociology*

CHARLES EDWARD BISHOP, PH.D., *Professor of the Greek Language and Literature*

DEAS ARCHER, *Professor of Military Science and Tactics and Commandant of Cadets*

JOSEPH ELLIS HODGSON, PH.D., *Professor of Mathematics*

SIMEON CONANT SMITH, A.M., *Associate Professor of Rhetoric*

ARLEIGH LEE DARBY, A.M., *Associate Professor of Latin and Italian*

DAVID DALE JOHNSON, A.M., *Associate Professor of English*

DENNIS MARTIN WILLIS, LL.M., *Assistant Professor of Commerce*

RACHEL HARTSHORN COLWELL, A.M., *Assistant Professor of Home Economics*

LONNA DENNIS ARNETT, PH.D., *Librarian and Instructor in Library Science*

BENJAMIN WALTER KING, A.B., *Assistant Professor of Economics*

CHARLES SUMNER CROW, A.M., *Assistant Professor of Education*

FREDERICK ROST KOELZ, A.B., *Instructor in German*

MARY BERTHA OLIVER, B.S., *Instructor in Home Economics and Director of Physical Training for Women*

EDWIN REGUR SWEETLAND, B.S., LL.M., *Instructor in Physical Training and Director of the Gymnasium*

FLORA RAY HAYES, A.B., *Instructor in Music*

HUBERT HILL, M.Sc., *Instructor in Chemistry*

WILLIAM ARMSTRONG PRICE, JR., PH.D., *Instructor in Geology*

EDWARD FRED WOODCOCK, A.M., *Instructor in Botany*

JOSEPH WILLIAM HAKE, A.M., *Instructor in Physics*

JOHN THERON ILLICK, A.M., *Instructor in Zoology*

CLAUD CARL SPIKER, A.B., *Instructor in Romance Languages*

AMELIA ROBINSON MUMFORD, A.B., *Assistant in English*

CHARLES BYRON JOLLIFFE, *Student Assistant in Physics*

BIRD MAY TURNER, *Student Assistant in Mathematics*

EDMUND DANIELS McGARRY, *Student Assistant in History*

FRANK HALL, *Student Assistant in Mathematics*

ROBERT CLIFTON SPANGLER, *Student Assistant in Botany*

ENTRANCE REQUIREMENTS.

For the admission to the College of Arts and Sciences, the candidate must have credit for fifteen units, obtained by examination or on certificate from a duly accredited secondary school.

Of the fifteen units required for admission to the curricula leading to the degree of Bachelor of Arts, nine are definitely prescribed as follows:

	Units.
English	3
Latin	2
History	1
Mathematics—	
Algebra, 1 unit; Plane geometry, 1 unit — Total	2
Science—	
Physics, Chemistry, Botany, or Zoology — Any one of the four	1
Total prescribed	9

The remaining six units must be chosen as electives from the following list:

		Units
Latin	1	to 2
Greek	2	to 3
German	2	to 3
French	2	to 3
Mathematics—		
Algebra ½ unit; Solid geometry, ½ unit; Plane Trigonometry ½ unit		½ to 1½
History and Civics		½ to 2
Physics	1	
Chemistry	1	
Botany		½ to 1
Agriculture		½ to 1
Zoology		½ to 1
Physical Geography		½
Physiology		½
Drawing		½ to 1
Vocational Studies		½ to 2

A single unit of language will not be accepted unless further work in that language is taken in the University.

Credit for work in vocational studies must be approved by the committee on classification and grades in each individual case.

For admission to the curricula leading to the degree of Bachelor of Science the requirements are the same as the foregoing, except that a modern language may be substituted for the two units of Latin prescribed and an additional unit of mathematics is prescribed—one-half unit of algebra and one-half unit of solid geometry or plane trigonometry.

For a detailed statement of the amount of work required for each unit of entrance credit see page 51.

DEGREES.

BACCALAUREATE DEGREES

There are two baccalaureate degrees conferred in the College of Arts and Sciences:

1. The degree of Bachelor of Arts.
2. The degree of Bachelor of Science.

Amount of Work Required

The "semester hour" is the standard for computing the amount of work required for graduation in the curricula leading to these degrees. The "hour" represents the amount of work done in one semester (eighteen weeks) in one recitation hour with two preparation hours a week. No student is permitted to register for less than fourteen hours or more than seventeen hours of work in any one semester .

A baccalaureate degree in the College of Arts and Sciences is conferred upon any student who satisfies all entrance requirements and secures credit for one hundred and twenty-eight semester hours selected in accordance with the following provisions:

Groups of Studies

The subjects of study are arranged in three groups:

I LANGUAGE: English, Latin, Greek, German, French, Spanish, Italian, Public Speaking .

II. SCIENCE: Mathematics and Astronomy, *Engineering, Physics, Chemistry, Geology, Botany, *Horticulture, *Forestry,

*Agronomy, *Animal Husbandry, *Farm Management, Zoology, *Entomology, Physiology, Bacteriology, Home Economics, *Military Science, *Physical Training, *Library Science.

II. PHILOSOPHY: Philosophy, Education, History, *Law, Political Science, Economics and Sociology, Commerce, *Music, *Fine Arts.

Subjects marked with a star cannot be chosen as major subjects for the A.B. and B.S. degrees.

General Requirements

Major Subjects. At the beginning of the Sophomore year the student must select his major study from one of the above groups. The work required in the major is thirty hours in one subject or twenty hours in one subject and ten hours in another related subject.

The head of the department to which the major subject belongs becomes the student's class officer. (See page 33). When the student has selected his major subject, he will not be permitted to change to another major without the consent of the committee on classification and grades.

Minor Subjects. Thirty hours of work in each of the two remaining (minor) groups is required. Less than six hours in any one subject will not be counted as part of the thirty hours required.

Required English. Six hours of rhetoric and composition (English 1 and 2) and four hours of English literature (English 26 and 27) are required of all candidates for degrees.

Special Requirements

For the Degree of Bachelor of Arts.

(a) Languages:—

(1) Ancient language: If the student offers four units of Latin or of Latin and Greek, for entrance, ten hours of ancient language are required; if, however, he offers less than four units for entrance this requirement will be proportionately increased. The time may be divided between Latin and Greek at the option of the student, provided that not less than ten hours in a language be elected.

(2) Modern language: Ten hours in one modern language is required.

(b) Philosophy:—

Twelve hours; two out of the three following subjects or groups

of subjects, are required: history, six hours; economics and sociology, six hours; philosophy and education, six hours.

(c) Science:—

Sixteen hours; two out of the following subjects are required: mathematics, eight hours: physics or chemistry, eight hours: botany or zoology, eight hours.

For the Degree of Bachelor of Science.

(a) Language:—

If two units of Latin are offered, ten hours of French and twenty of German or ten hours of German and twenty of French are required; if either French or German is offered for entrance ten hours of the one offered and twenty of the one not offered are required; or if both languages are offered for entrance, ten hours of each are required.

(b) Science:—

Sixteen hours; two out of the three following subjects are required; mathematics, eight hours; physics or chemistry, eight hours; botany or zoology, eight hours.

For Students Preparing to Enter Another College or School of this University.

Students who desire to take on year's work in the College of Arts and Sciences preparatory to entering the College of Law and who announce their intention at the beginning of the freshman year will be required to take thirty-two hours of academic work as outlined on page 207 and will be excused from the foregoing general and special requirements for the bachelor's degree in the College of Arts and Sciences.

Students who desire to take one year's work in this college preparatory to entering the School of Medicine and who announce their intention at the beginning of the freshman year will be required to follow the curriculum for pre-medical students given on page 220 and will be excused from the foregoing requirements for a bachelor's degree in the College of Arts and Sciences.

For Students Who Desire to Take a Combined Course in Two Colleges in Six years.

Students who desire to secure the degree of A.B. and LL.B. in six years may, after completing ninety-six hours in the College of Arts and Sciences elect eighteen hours of work from the first year of

the curriculum in Law (as designated on page 208) as part of the work of the senior year. After receiving the A.B. degree they may then complete the Law Course in two years.

Students who desire to secure the B.S. degree and then take a bachelor's degree in the College of Engineering may complete the work for both degrees in six years or less by following the curriculum outlined on page 141. Those who desire to secure the B.S. and B S. Agr. degrees in a similar time must follow the curriculum outlined on page 182.

Students who desire to secure the B.S. degree with a view to proceeding to the study of medicine and who announce this intention on entering the freshmen class will be excused from the foregoing general and special requirements and may secure the degree of B.S. by taking sixty-four hours of work in the College of Arts and Science (as outlined on page 219) and the two year's course in the School of Medicine as outlined on page 221.

Elective Courses

The remaining work necessary to make up the total of one hundred and twenty-eight hours required of candidates for the bachelor's degree, may be selected from any of the courses offered in the College of Arts and Sciences. Work not to exceed fifteen hours in the College of Law or the College of Agriculture and not to exceed thirty hours in the College of Engineering may be included in the list of elective credits offered by students in the College of Arts and Sciences. The total number of hours elected from other colleges shall not, however, exceed thirty in all.

Classification of Students

To be classified as a freshman in the College of Arts and Sciences a student must have credit for at least thirteen units of entrance requirements; to be classified as a regular freshman he must have fulfilled all entrance requirements. To be classified as a sophomore he must have credit for twenty-five hours of college work; as a junior, fifty-eight hours; as a senior, ninety-two hours.

Graduate Degrees

There are two advanced degrees conferred in the College of Arts and Sciences: Master of Arts and Master of Science. For the conditions upon which these degrees are granted see page 37.

COURSES OF INSTRUCTION

In the following announcements each course described counts for the number of hours in parenthesis after the name of the course. Whenever possible, the semester during which the course is given, the hour, the name of the instructor, and class room, are stated at the end of the announcement of each course. For convenience it is customary to designate the courses of study by the name of the department and the number of the particular course. Thus the course in psychology is known as "Philosophy 3"; the course in plane trigonometry is known as "Mathematics 4"; the course in electrical measurements is known as "Physics 10"; etc. The abbreviations used are: W., Woodburn Hall; S., Science Hall; M., Martin Hall; M. H., Mechanical Hall; C., Commencement Hall; A., Agricultural Building; S. F., South Fife Cottage; N. F., North Fife Cottage; G., Gymnasium; L., Library; H., Horticulture Building.

AGRONOMY AND ANIMAL HUSBANDRY

Credit will be given in the College of Arts and Sciences for course 2 in Agronomy and courses 14 and 11 in Animal Husbandry in the College of Agriculture. See pages 185 and 186.

BOTANY

Professor SHELDON and Mr. WOODCOCK.

NOTE:—For a description of the botanical laboratories see page 26.

Botany 1 and 2, or the equivalent, are prerequisites for all the other courses in botany, except course 10.

Students will find it to their advantage to consult with the head of the department before registering for courses in botany. Those expecting to teach botany in the high schools are advised to take courses 1, 2, 5, 6, 10, 12, and 21.

1. General Botany. (4 Hrs.) Lectures and quizzes on protoplasm, the cell, and the morphology, physiology, and economic importance of algae and fungi in general, with laboratory and field work. **Laboratory fee, $1.50.**

First semester; M. W. F., 9:00; Professor SHELDON, N. F.; laboratory sections, M. W., M. Th., Tu. Th., Tu. F., W. F., 2:00; Mr. WOODCOCK, N. F.

2. General Botany. (4 Hrs.) Continuation of Botany 1. Lectures and quizzes on the morphology, physiology, and economic im-

portance of liverworts, mosses, ferns, and seed plants, with laboratory and field work. Laboratory fee $1.50.

Second semester; M. W. F., 9:00; Professor SHELDON, N. F.; laboratory sections, M. W., M. Th., Tu. Th., Tu. F., W. F., 2:00; Mr. WOODCOCK, N. F.

3. Agricultural Botany. (4 Hrs.) Primarily for freshmen in the College of Agriculture. This course will include a study of protoplasm, the cell, a general survey of the vegetable kingdom with a consideration of the economic importance of the various groups, laboratory and field work. Laboratory fee, $1.50.

First semester; Tu. Th., 9:00; Professor SHELDON, N. F.; laboratory sections to be arranged.

4. Agricultural Botany. (4 Hrs.) Continuation of Botany 3.

First half-semester: Morphology, Physiology, and economic importance of roots, stems, leaves, flowers, fruits, seeds.

Second half-semester: Characteristics and uses of the chief families of seed plants of agricultural interests; practice in identifying trees, grasses, forage and garden plants, weeds, etc. A collection will be required. Laboratory fee, $1.50.

Second semester; Tu. Th., 9:00; Professor SHELDON, N. F.; laboratory sections to be arranged.

5. Systematic Botany of Seed Plants. (3 to 5 Hrs.) This course will include a brief survey of the development of systematic botany, a review of the morphology of seed plants, lectures on the characteristics and classification of the more important families, practice in identification, laboratory and field work. A collection will be required.

Second semester; M. W. F., 4:30; field work for the most part after about April first; Professor SHELDON, N. F.

6. Systematic Botany of Seed Plants. (3 to 5 Hrs.) Continuation of Botany 5. Students are advised to do some collecting during the summer.

First semester; M. W. F., 4:30; field work until about October fifteenth; Professor SHELDON, N. F.

NOTE:—Courses in systematic botany of the fresh-water algae, fungi, liverworts, mosses, and ferns will be arranged for students who have sufficient preparation to profit by such courses.

10. General Bacteriology. (3 Hrs.) This is a general course on the nature of bacteria—what they are, how they live, and what they do—with practice in growing and studying them. Laboratory fee, $2.50.

First semester, Tu. Th., 11:00; laboratory, Tu., 2:00; primarily for sophomores in the College of Agriculture; Professor SHELDON, and assistant, N. F.

Second semester; Tu. Th., 11:00; laboratory, Tu., 2:00; elective for students in all colleges; Professor SHELDON and assistant. N. F.

12. Plant Physiology. (3 Hrs.) A fundamental course on the relation of plant structure to function and stimulus. Some knowledge of physics and chemistry is desirable. Laboratory fee, $1.00.

First semester; Tu. Th., 10:00; laboratory, Tu., 2:00; Professor SHELDON, N. F.

13. Plant Physiology. (3 Hrs.) Continuation of Botany 12. The physiology of crop production. Laboratory fee, $1.00.

Second semester; Tu. Th., 10:00; laboratory, Tu., 2:00; Professor SHELDON, N. F.

14. Plant Pathology. (3 Hrs.) Botany 12 should precede or accompany this course. An elementary course on the development of plant pathology and the nature, causes, and control of some of the common diseases of economic plants. Laboratory fee, $1.00.

First semester; F., 10:00; six hours of library, laboratory, or field work; Professor SHELDON, N. F.

15. Plant Pathology. (3 Hrs.) Continuation of Botany 14. This course will include comparative studies of normal and diseased tissues, culture methods of bacteria and fungi, and experiments in inoculation. A previous knowledge of bacteriological technique and some systematic botany of seed plants and fungi will be of advantage in this course. Laboratory fee, $2.00.

Second semester; F., 10:00; six hours of laboratory work; Professor SHELDON, N. F.

17. Advanced Plant Pathology. (3 to 10 Hrs.) The critical investigation of an assigned or approved problem. Laboratory fee to cover cost of material used.

Both semesters; hours to be arranged; Professor SHELDON, N. F.

18. Histology. (3 to 5 Hrs.) A study of tissues and tissue aggregates. The technique of imbedding, sectioning, mounting, and staining. Laboratory fee to cover cost of material used.

Both semesters; hours to be arranged; Mr. WOODCOCK, N. F.

20. Botanical Technique. (3 to 5 Hrs.) This course is for students who expect to teach botany or do research work. It will include methods of collecting and preserving plant material and the

preparation of permanent mounts. Laboratory fee to cover cost of material used.

Both semesters; hours to be arranged; Mr. WOODCOCK, N. F.

21. Methods of Teaching Botany. (3 Hrs.) Primarily for those preparing to teach botany in the high schools of West Virginia. Elective for juniors and seniors who have taken at least ten hours of college botany.

Second semester; hours to be arranged; Professor SHELDON, N. F.

CHEMISTRY

Professor WHITEHILL, Professor KORTRIGHT and Mr. HILL.

NOTE:—For description of chemical laboratories see page 25.

1. Inorganic Chemistry. (4 Hrs.) Primarily for beginners, but students who have offered elementary chemistry for entrance credit may take the course and receive credit on their college work. The course includes a systematic study of the laws of chemical combinations; the source, preparation, properties and compounds of the non-metallic elements and the theories and laws of chemical operations. Experimental lectures, recitations and laboratory work. Laboratory fee, $3.00.

First semester, first section, M. W. F., 9:00; Professor WHITEHILL, 20 S.; second section, M. W. F., 11:00; Professor WHITEHILL, 20 S.

2. Inorganic Chemistry. (4 Hrs.) Continuation of Chemistry 1. This course includes the study of the metallic elements and special attention is paid to the applications of chemistry to agriculture, engineering, medicine and every-day life. Experimental lectures, recitations and laboratory work. Laboratory fee, $3.00.

Second semester, first section, M. W. F., 9:00; Professor WHITEHILL, 20 S.; second section, M. W. F., 11:00; Professor WHITEHILL, 20 S.

Should more students register for Courses 1 and 2 than can be accommodated in the sections named an additional section will be organized each semester at 10:00, M. T. Th.

The laboratory work of Courses 1 and 2 is under the supervision of Mr. HILL. The class is divided into five sections for laboratory work as follows: M. T. W. Th. F., 2:00, 21 S.

3. Organic Chemistry. (2 Hrs.) This course is open to students who have completed any standard elementary text in inorganic chemistry, accompanied by individual laboratory work. It is also open to students who have completed Inorganic Chemistry 1 and are

taking Inorganic Chemistry 2 in the same semester. The course includes the study of the more important organic compounds, especially those which have a wide technical application and those which are familiar in the operations of daily life. Experimental lectures, recitations and laboratory work.

Second semester, T. Th., 9:00; Professor WHITEHILL, 20 S.

4. Qualitative Analysis. (2 Hrs.) Required of all candidates for engineering degrees. Continuation of Chemistry 2. This is a course treating of those properties which are of importance in the separation and identification of the common metals and acids. In addition to the work in the laboratory there are lectures and recitations in which chemical reactions are studied from the point of view of the mass law and the theory of electrolytic dissociation. Laboratory fee, $6.00.

First semester, T. Th., 2:00-4:00; Professor KORTRIGHT, 23 S.

5. Qualitative Analysis. (4 Hrs.) For students in the College of Arts and Sciences and in the College of Agriculture. Continuation of Chemistry 2. A course similar in its general nature to Chemistry 4, but more extended. Laboratory fee, $9.00.

First semester, M., 2:00; laboratory, W.F., 2:00-5:00; Professor KORTRIGHT, 23 S.

6. Quantitative Analysis. (5 Hrs. For mining engineering students, 2 Hrs.) A course treating of the elementary principles of gravimetric and volumetric analysis. Laboratory fee, $8.00.

Second semester, M., 2:00; laboratory, T. W. Th. F., 2:00-5:00; Professor KORTRIGHT, 23 S.

7. Quantitative Analysis. (4 Hrs.) Continuation of Chemistry 6. In this course more difficult analyses will be made and such substances as limestone, coal, boiler water, etc., will be examined. Laboratory fee, $6.00.

First semester, T. W. Th. F., 2:00-5-00; Professor KORTRIGHT, 32 S.

8. Organic Quantitative Analysis. (5 Hrs.) This course treats of the analysis of food stuffs, beverages, etc. Prerequisite; Chemistry 3, 5 and 6. Laboratory fee, $8.00.

Second semester, 2:00-5:00; Professor KORTRIGHT, S.

9. Medical Organic Chemistry. (5 Hrs.) Required of medical students. Prerequisite: Chemistry 1, 2 and 3. Laboratory fee, $10.00.

First semester, 10:00-12:00; Professor KORTRIGHT.

10. Medical Analysis. (5 Hrs.) Required of medical students. Continuation of Chemistry 9. Laboratory fee, $10.00.

Second semester, 10:00-12:00; Professor KORTRIGHT.

11. Quantitative Analysis. (2 Hrs.) Required of all students who select chemistry as their major subject. The course includes practice in the analysis of iron and steel, iron ores, limestone, sand, clay and other materials usually brought to the laboratory of an iron and steel works. Laboratory fee, $4.00.

First semester, T. Th., 2:00; Professor WHITEHILL, 21 S.

12. Quantitative Analysis. (2 Hrs.) Continuation of the same line of work as indicated in course 11. Laboratory fee, $4.00.

Second semester, T. Th., 2:00; Professor WHITEHILL, 21 S.

13. Chemical Preparations. (2 Hrs.) This course will include the preparation of some of the more important inorganic and organic compounds. Quantitative work in the verification of chemical laws is undertaken, and the work is made as fully illustrative of laboratory processes as possible. The course is designed to meet the requirements of students who wish to take advanced work in general chemistry, or who wish to become teachers of the science. Prerequisite: Chemistry 1 and 2 or their equivalent. Laboratory fee, $3.00.

First semester, T. Th., 2:00; Professor WHITEHILL, 21 S.

14. Chemical Calculations. (2 Hrs.) This course is designed for students who wish to study the mathematical principles which are involved in chemical operations. It includes the consideration of questions involving weight and volume reactions, atomic and molecular weight determinations, the methods of calculating the results of analyses and the various other computations of importance to the student of chemistry. Prerequisite: Chemistry 1 and 2 or their equivalent.

Second semester, T. Th., 2:00; Professor WHITEHILL, 21 S.

15. Special Work. Chemistry offers a wide field for study and investigation. Special work in any of the various departments of the science may be taken in the laboratory under the direction of the instructors, and credit will be given in proportion to the amount of work accomplished.

CIVIL ENGINEERING

Credit not to exceed thirty hours will be given in the College of Arts and Sciences for certain courses in this subject given in the College of Engineering. See page 141.

COMMERCE

Assistant Professor WILLIS and Assistant Professor KING.

1. Special Accounting. (3 Hrs.) Required of all students who make commerce their major. A theoretical course in keeping the accounts in special lines of business. The object of this course is to familiarize the student with nomenclatures of the various lines of business, and to furnish him with a practical working knowledge of the special accounts necessary to handle the specific lines of trade.

First semester: M. W. F., 8:00; second semester; T. Th., 10:00; Assistant Professor WILLIS, 30 S.

2. Materials of Commerce. (3 Hrs.) A description of the surface of the earth, with special reference to the production, manufacture, transportation and exchange of articles of trade. A general outline of the countries of the world; soil, climate, agricultural products, forests, manufactories, quarries, mines, centers of industry, foreign relations, ways of communication, social relations and conditions, imports, exports and markets.

First semester, M. W. F., 11:00; Assistant Professor WILLIS, 30 S.

18. Materials of Commerce. (2 Hrs.) Continuation of Commerce 2. Lectures and recitations.

Second semester, T. Th., 11:00; Assistant Professor WILLIS, 30 S.

3. Advanced Accounting. (3 Hrs.) Accounting necessary to obtain at any time the exact cost of articles produced by the manufacturer; the origin and cost of raw material; record of stock on hand, and consumption in process of manufacture; comprising purchase record and invoice system, freight distribution, stock and store room systems and records, the various methods by which material is transferred from stock to the process of manufacturing, perpetual inventories, requisitions, etc. Prerequisite: Commerce 1.

Second semester, M. F., 10:00; Assistant Professor WILLIS, 30 S.

4. Corporation Administration. (3 Hrs.) A course presenting the accounting necessary in the formation of a corporation and its operation. The records of the secretary of the corporation and the accounts growing out of the minutes, etc.; the accounts affected by the issuing of installment certificates of stock, by their transfer, by their surrender, by the issuing of stocks, and of additional stocks by dividends, by changes from partnerships into corporations, etc.; methods of preparing financial statements for publication; and a brief review of corporation laws.

First semester, T. Th., 11:00; laboratory, hours to be arranged; Assistant Professor WILLIS, 30 S.

6. Corporation Finance. (3 Hrs.) An exposition of the financial organization and conduct of large corporations; the accounting necessary in railroad and industrial combinations and mergers; a review of the laws and the customs that govern the financial management of foreign corporations. Prerequisite: Commerce 4.

Second semester; M. W. F., 9:00 Assistant Professor WILLIS, 30 S.

7. Auditing. (2 Hrs.) The course is based on an assumed knowledge of accounts both as an art and as a science. The student passes naturally from a study of practical accounts and the theory of accounts to that of professional examinations and oversight. Special attention is given to reports of auditors and finance committees of states, corporations, and municipalities, etc. Prerequisite: Commerce 9.

Second semester; T. Th., 9:00; Assistant Professor WILLIS, 30 S.

8. Practical Banking. (3 Hrs.) The object of this course is to give the student a comprehensive knowledge of the inside workings of a bank, and of the laws regulating national and state banks. The subjects treated are deposits, duties of depositors; reserves, loans and discounts; circulating notes, credit and commercial paper; accommodation paper; checks and bills of exchange; branch banking; the duties of officers and clerks; the liabilities of directors and stockholders, and bank management in general. Prerequisite: Commerce 1.

First semester; T. Th., 10:00; laboratory hours to be arranged; Assistant Professor WILLIS, 30 S.

9. Accounting Procedure. (3 Hrs.) Required of all students who make commerce their major. Installation of accounting systems; theory of accounts and its adaptability to practical work; books of original entry, their connection with the general scheme of business; depreciation of current assets and working capital; statements prepared for establishing a commercial rating and credit; a consideration of personal and impersonal accounts; the best methods of combining for quick and accurate consideration of the condition of the business, etc. Prerequisite: Commerce 1.

First semester, T. Th., 9:00; laboratory, hours to be arranged; Assistant Professor WILLIS, 30 S.

10. Bank and Trust Company Administration. (2 Hrs.) This course furnishes a complete exposition of all the methods of accounting which relate principally to banks and modern trust companies, and a brief review of banking laws, and the laws governing negotiable instruments. In connection with the lectures in this course, blanks and forms collected from the best regulated banks and trust

companies in the country are examined by students. Prerequisite: Commerce 8.

Second semester; T. Th., 10:00; Assistant Professor WILLIS, 30 S.

13. Secretarial Studies. (3 Hrs.) A series of studies designed for students who expect to teach commercial subjects in the high schools, or to occupy secretarial or managerial positions. The student is instructed in the principles of stenography, and in the most approved methods of office administration.

First semester, M. T. Th., 2:00; second semester, hours to be arranged; Assistant Professor KING, 31 S.

14. Secretarial Studies. (3 Hrs.) Continuation of Commerce 13

Second semester, M. T. Th., 2:00; Assistant Professor KING, 31 S.

17. Insurance. (4 Hrs.) The nature and origin of marine, fire, fidelity, title, credit and life insurance: the rules governing such insurance and their interpretation; principles involved; adjustments of losses, etc.

First semester, M. T. Th. F., 10:00; Assistant Professor KING, 31 S.

ECONOMICS AND SOCIOLOGY

Professor VICKERS and Assistant Professor KING

Instruction in this department is designed to meet three special needs of students: (1) Training for individual efficiency in getting a living under present economic and social conditions; (2) training which will enable students to understand the existing economic and social order—whence arise many urgent problems of the time—and intelligently to discharge their duties as citizens; (3) training to prepare those so electing to continue advanced study and specialization in economics and sociology.

Economics 1 and 2 will be helpful to students in all other courses in the department. It is a prerequisite for all students in Economics 3, 4, and 14, and for others than juniors, seniors and graduates in Economics 10 and 11. Courses in sociology should, if practicable, be deferred to the junior and senior years.

Economics

1. Principles of Economics. (3 Hrs.) For students who desire foundation training in economics, whether as preparation for advanced courses of study or for intelligent grasp of actual economic conditions and problems. A general course on fundamental principles governing consumption, production, distribution and exchange of

wealth. Designed to be followed by economics 2, though separate credit is allowed.

First semester, M. W. F., 8:00; Professor VICKERS, 12 M.

2. Principles of Economics. (3 Hrs.) Continuation of preceding course. Prerequisite: Economics 1.

Second semester, M. W. F., 8:00; Professor VICKERS, 12 M.

14. Distribution of Weatlh. (2 Hrs.) This course considers the actual apportionment of wealth among the several classes of society. Special attention is given to effects of competition, monopoly, combinations of capital and labor, government regulation, methods of economic organization. Prerequisite: Economics 1 and 2.

First semester, T. Th., 8:00; Professor VICKERS, 12 M.

3. History of Economic Thought. (2 Hrs.) This course traces the development of economic theories from antiquity to the present time. Causes, nature and effects of change in theory, and relations between economic theories and economic and political institutions are sought out. Prerequisite: Economics 1 and 2.

First semester, T. Th., 9:00; Professor VICKERS, 12 M.

4. Relations of Government to Economic Enterprise. (2 Hrs.) This course considers the functions of government, both state and municipal, in relation to economic enterprises; conditions requiring government action; principles and expediency of government regulation and of government ownership; methods adopted and results obtained for typical enterprises in this and other countries. Prerequisite: consent of instructor. (Omitted 1914-15).

First semester, T. Th., 9:00; Professor VICKERS, 14 S.

5. Money, Credit and Banking. (3 Hrs.) This course treats of the nature and functions of money; nature and uses of credit; functions of banks and principles of banking as revealed in the banking systems of leading countries .

First semester; T. Th., 11:00; W., 2:00; Assistant Professor KING, 31 S.

12. Exchange. (2 Hrs.) The principles and practice of domestic and foreign exchange, with special emphasis on the latter. A study of the foreign exchanges as a system of settling international indebtedness; gold shipments; general theory of exchange rates and their interrelations; foreign exchange investment, borrowing and speculation; and international distribution of specie.

Second semester; T. Th., 11:00; Assistant Professor KING, 31 S.

6. Public Finance. (4 Hrs.) Principles governing expendi-

tures of modern governments; sources of revenue; principles and methods of taxation; requirements of an adequate tax system; uses of public credit; principles and methods of financial administration as revealed in fiscal systems of leading countries.

Second Semester; T. W. Th. F., 9:00; Professor VICKERS. 12 M.

7. Transportation. (3 Hrs.) A study of the various transportation systems of the United States with special reference to the railway and its importance in the development of our internal commerce, rate-making, federal and state regulation and the functions of the Interstate Commerce Commission.

First semester; M. W. F., 11:00; Professor KING. 31 S.

8. Transportation. (3 Hrs.) Continuation of Course 7. A study of the transportation systems of the United States with special reference to water transport; the status of our inland water transportation; the international importance of the Panama Canal; and the position of American shipping in the world's commerce.

Second semester; M. W. F., 11:00; Assistant Professor KING. 31 S.

9. History of Commerce. (3 Hrs.) Methods of exchange in ancient times; shipping of the ancients; fairs and markets; results of maritime discoveries; changing the commercial routes; international treaties affecting commerce; scientific and industrial discoveries affecting commerce; trade restrictions; boards of trade; stock and produce exchanges; circulation of commodities between cities and countries; trade statistics.

Second semester; M. T. Th., 10:00; Assistant Professor KING, 31 S.

13. The Natural Resources of the United States: Their Exploitation and Conservation. (3 Hrs.) A study of the natural resources of the United States, and their relation to national development. The exploitation of the soils, forests, mines, etc.; the conservation movement and the development of scientific methods; the relation of national resources to the distribution and activities of the people.

Second semester; T. Th., 9:00; W., 2:00; Assistant Professor KING. 31 S.

10. International Trade Policies. (3 Hrs.) Nature, advantages and relative importance of trade between nations. Protective and revenue tariffs in theory and in the practise of leading nations. Special attention to policies—historical and actual—of the United States. Prerequisite: Economics 1 and 2, or equivalent.

First semester; M. W. F., 9:00; Professor VICKERS. 12 M.

11. Labor Problems. (3 Hrs.) Treats the origin and nature of labor problems, methods and agencies of amelioration and reform;

woman and child labor, sweating, immigration, unemployment, labor legislation, conciliation, arbitration; coöperation, profit-sharing, insurance, industrial education. Prerequisite: Economics 1, 2, or consent of instructor.

Second semester; M. W. F., 11:00; Professor VICKERS, 12 M.

Sociology

1. Elements of Sociology. (4 Hrs.) A study of the origin and nature of societal forces; how they operate selection and change, determine customs, mould fundamental institutions such as language, religion, property, government, marriage, and differentiate social classes and groups.

First semester; M. T. Th. F., 10:00; Professor VICKERS, 12 M.

2. Social Structure and Functions. (3 Hrs.) A study of the organization of existing society; social elements, organs and institutions; their mutual relations, actions, reactions and resulting conditions.

Second semester; M. T. Th., 10:00; Professor VICKERS, 12 M.

3. Social Pathology. (2 Hrs.) Defective, dependent and delinquent classes and resultant problems of charity, pauperism, crime. Investigation of causes, palliatives, preventives; and also methods of organization and administration.

Second semester; T. Th., 8:00; Professor VICKERS, 12 M.

NOTE:—For course in rural economics see page 191.

EDUCATION

Professor DEAHL and Assistant Professor CROW.

The courses offered in this department aim to contribute to the educational influences and to the professional efficiency of the schools of the state in the following ways: 1. To interest those students who may without intending to use the knowledge in teaching, desire to study the science of education as a part of their general culture. 2. To afford university students who wish to teach for a time after graduation the means of professional training commensurate with their academic training. 3. To furnish appropriate professional education to University students, and to any experienced teachers of suitable age and attainments, who may desire to fit themselves to be teachers, principals, or superintendents of schhools.

Students who elect education as their major are urged to do sufficient work in some one department to prepare them to teach a particular subject, as English, physics, mathematics, etc.

1. History of Education—Early Christian, Mediaeval, and Transition to Modern. (3 Hrs.) A study of the development of education as an institution for social service. Special attention is given to the origin and development of the aims, subject matter, and methods of education, with the view of getting at the forces and principles involved. The course is organized around such problems as (1) individual realization and social service; (2) content and formal values in educational progress; (3) conservative and progressive forces in educational development and retardation.

First semester; M. W. F., 8:00; Assistant Professor CROW, 16 W.

2. History of Education—Modern. (3 Hrs.) A study of the rise and development of modern educationtal theory; the scientific, psychological, sociological, and vocational tendencies in education; the development of national, state, and city systems of schools; modern programs of studies, organization and methods.

Second semester; M. W. F., 8:00; Assistant Professor CROW, 16 W.

23. History of Education—American. (2 Hrs.) Our educational inheritance from Europe and the needs it met; a study of the development of our system of public education as a progressive response to social changes and growing needs; the evolution of modern state, city and rural systems, of modern programs of study and of methods.

Second semester; T. Th., 8:00; Assistant Professor CROW, 16 W.

4. Philosophy and Education. (3 Hrs.) This course aims to lay the basis of a scientific theory of education . The process of education is explained from the standpoint of the doctrine of evolution; the principles thus arrived at are applied from the standpoint of the history of civilization, the developing mind of the child, and the cultivation of individual and social efficiency.

First semester; M. W. F., 11:00; Professor DEAHL, 17 W.

5. Philosophy of Education. (3 Hrs.) A continuation of course 4.

Second semester; M. W. F., 11:00; Professor DEAHL, 17 W.

6. School Administration and Supervision. (2 or 3 Hrs.) This course is intended primarily for principals and superintendents of schools, and for those who are perparing for such school work. The course deals with such topics as: school boards, school buildings and grounds, school equipment, the preparation of principals and superintendents, the preparation of teachers; the selection and promotion of teachers, city and rural supervision, examinations and tests, grading and promoting pupils, etc. (Omitted 1914-15.)

Second semester; T. Th., 10:00; Professor DEAHL, 17 W.

7. School Administration and Supervision. (2 or 3 Hrs.) Continuation of course 6. Business and educational administration of schools, the school system and the school, the functions of the superintendent and of the principal, the improvement of teachers and teaching, the teachers' meeting, institutes and associations, lesson plans, progress books and reports, the program of studies in elementary and in secondary schools, school government and pupil government, the selection of books and the use of libraries, estimating teaching and the standard of school work, etc.

Second semester; T. Th., 10:00; Professor DEAHL, 17 W.

8. Foreign School Systems. (3 Hrs.) The purpose of this course is to make a comparative study of the school systems of France and Germany, together with special features of other continental systems. The practical problems will be examined from the standpoint of American education.

Second semester; hours to be arranged; Professor DEAHL, 17 W.

9. School Systems, British and American. (3 Hrs.) This course deals with the development and present status of education in England, Scotland, Canada and the United States. The practical workings of the system will be emphasized. (Omitted 1914-15.)

First semester; hours to be arranged; Professor DEAHL, 17 W.

NOTE: Courses 8 and 9 will not be given unless the number of students desiring them is considered sufficient by the instructor in charge.

10. The Principles and Art of Teaching. (3 Hrs.) Required of all students who are candidates for recommendation for teachers' certificates. The aim of this course is to find a scientific method of learning and teaching and to determine the essential elements of teaching. Students will formulate and discuss lesson plans, do observation work, and teach regular classes, observe, so far as conditions will permit, lessons given by regular teachers, and report the same in class. Prerequisite: Education 12 or 17, and Education 4 and 5.

First semester; M. W. F., 9:00; Assistant Professor CROW, 16 W.

11. Criticism and Supervision of Instruction. (3 Hrs.) This course is planned for teachers, supervisors, principals, and superintendents of schools. It will make an intensive study and application of some fundamental principles of education in both method and program of studies. Lessons will be planned and then taught with a class of pupils in the public schools of Morgantown. The lessons thus taught will be discussed in conference. The course will afford

an opportunity for observation of lessons, practice teaching, and the supervision of instruction.

Second semester; M. W. F., 9:00; Assistant Professor CROW, 16 W.

12. Psychology in Learning and Teaching. (3 Hrs) This course will present the principles that control rational learning and successful teaching as far as such principles may be derived from psychological laws. A number of psychological topics—the senses, sensation, perception, memory, imagination, reason, association of ideas, apperception, interest and attention, mental development, will, habit, and character—will be studied.

Second semester; M. W. F., 9:00; Professor DEAHL, 17 W.

13. Seminar. (3 Hrs.) The program of studies in elementary school.

First semester; T. Th., hours to be arranged; Professor DEAHL, 17 W.

14. Seminar. (3 Hrs.) High schools and secondary education.

First semester; T. Th., hours to be arranged; Professor DEAHL, 17 W.

NOTE:—Courses 13 and 14 will not both be given in the same year .

15. Seminar. (2 Hrs.) The rural school—its function; program of studies; state, county, and district supervision.

Second semester; T. Th., 8:00; Professor DEAHL, 17 W.

16. Agricultural Education. (2 Hrs.) Candidates for recommendation for a teacher's certificate who are registered in the College of Agriculture must take this course in place of course 10 in their senior year. (See announcements of College of Agriculture, page 184) Nature study and agriculture in the elementary and secondary school. Organization of programs of studies and the principles and methods of teaching. Observation of elementary and secondary classes in nature study and agriculture. Lectures and recitations, reading of literature.

Second semester; T. Th., 11:00; Professor ABBEY, 27 M.

17. Principles of Study. (3 Hrs.) Primarily for freshmen and sophomores. This course aims to present the principles of economic and successful study in such a manner as to aid college students in their studies as well as teachers in directing the study of the pupils in school. The function and relation of observing, thinking, reasoning, and memorizing in study will be emphasized.

First semester; M. F., 10:00, and a third hour to be arranged; Professor DEAHL, 17 W.

18. The Teaching of English in Secondary Schools. (2 Hrs.) This course seeks to discover and use the principles underlying the teaching of English as they are embodied in the best teaching of the present and the past. These principles have their bases in (1) the peculiar needs and acttivities of the adolescent period; (2) the subject matter; (3) the social demands in regard to English. On these bases, the course purposes to work out the principles underlying the aims, general and specific, of English instruction; the selection of subject matter; and the method of teaching.

Second semester; T. Th., 9:00; Assistant Professor CROW, 16 W.

19. Everyday Problems in Teaching. (1½ Hrs.) This evening course is planned for teachers in Morgantown and vicinity. The problems taken up are those the teachers are having to deal with in their work; these are found to center around the chief factors of education: the pupils; the teacher; the subject matter; the organization of the school; the method of teaching.

First semester; evening class; Assistant Professor CROW, 16 W.

20. Mental Tests and Measurements. The amount of credit will depend on the quality and quantity of work done, (2 to 6 Hrs.)

A study of education and psychology with reference to mental traits and capacities of normal, retarded, and delinquent children. The aim will be to test and measure learning and teaching and to secure accurate standards for classifying and promoting pupils in school.

First or second semester; hours to be arranged; Professor DEAHL, 17 W.

21. School Sanitation and Decoration. (2 Hrs.) A study of considerations which should determine the location and building of schoolhouses; attention is given to the most approved architectural plans with provisions for heating, lighting and ventilating: pictures, casts and busts suitable for schoolroom decoration are studied; the decoration of several rooms will be planned, and, is far as possible, carried out.

Second semester; evening class; Assistant Professor CROW, 16 W.

ENGLISH

Professor ARMSTRONG, Professor COX, Professor BARBE, Associate Professor SMITH, and Associate Professor D. D. JOHNSON.

Rhetoric

A. English. A four-hour course for which no college credit is given, intended primarily for students who have entered with a con-

dition in English or who have not made a satisfactory record in the courses regularly required of freshmen. A thorough survey and review of elementary rhetoric with frequent themes and other exercises in composition; reading and study of several representative English classics.

First semester; M. T. Th. F., 10:00; Associate Professor JOHNSON, 24 W.

B. English. A continuation of course A. No college credit.

Second semester; M. T. Th. F., 10:00; Associate Professor JOHNSON, 24 W.

1. Composition and Rhetoric. (3 Hrs.) Primarily for freshmen. Required of all candidates for the bachelor's degrees in all the colleges. Two themes weekly, conferences, recitations on textbook, class criticism of written exercises, lectures. This course is designed to be taken in conjunction with English 26.

First semester; sections for students of the College of Engineering, M. W. Th. and T. W. F. at 8:00; other sections M. W. F. at 8:00, 9:00 and 11:00; Professors COX and BARBE, and Associate Professors SMITH and JOHNSON.

2. Composition and Rhetoric. (3 Hrs.) Primarily for freshmen. Required of all candidates for the bachelor's degrees in all the colleges. A continuation of course 1 with more attention to rules and principles. Two themes weekly; study of prose masterpieces as models of style and as material for themes; conferences, recitations, class criticism of written exercises, lectures.

Second semester; sections for students of the College of Engineering, M. W. Th. and T. W. F. at 8:00; other sections M. W. F. at 8:00, 9:00 and 11:00; Professor BARBE and Associate Professors SMITH and JOHNSON.

NOTE:—Freshmen English is a prerequisite to other courses in composition.

3. Exposition. (2 Hrs.) Study of principles; analysis of masterpieces of exposition, both literary and scientific; themes.

First semester; T. Th., 9:00; Associate Professor JOHNSON, 10 M.

4. Argumentation. (3 Hrs.) A study of general principles and of specimens; outlines and exercises. Required of all who make English their major.

Second semester; T. Th., 9:00; Associate Professor JOHNSON, 24 W.

5. Advanced Composition. (1 to 3 Hrs.) This course is designed for advanced students in any department of the University

who may desire training and practice in some form of composition of the practical rather than the literary type, as for example, preparation of summaries and abstracts; lecture, laboratory, and field notes; technical and business composition; preparation of reports and similar articles; reporting and newspaper writing, etc.

Second semester; W., 11:00, and other hours to be arranged; Associate Professor JOHNSON, 24 W.

6. Description and Narration. (3 Hrs.) A study of general principles with exercises.

Second semester; M. T. Th., 10:00; Associate Professor SMITH, 21 W.

7. The Essay. (2 Hrs.) A study of the principles underlying the structure of the essay, with constant practice in their application.

Second semester; T. Th., 11:00; Associate Professor SMITH, 21 W.

9. Style. (3 Hrs.) A study of the principles and elements of style; practice to develop an artistic sense in the writing of English prose.

First semester; M. T. Th., 10:00; Associate Professor SMITH, 21 W.

10. The Letter. (2 Hrs.) Some great writers seen in their letters. A study of their use of this form of composition. Practice in writing.

First semester; T. Th., 11:00; Associate Professor SMITH, 21 W.

11. The English Course in the Seconadry School. (2 Hrs.) This course is designed especially for teachers or prospective teachers but is open to all who have credit for fifteen hours of college English. The course deals with the general management of the high school or preparatory school course in English. It includes a survey of the subject matter usually presented in such a course; a discussion of the relation of the various English subjects to each other and to other school subjects and school activities; preparation of materials and exercises for classes in composition; and some critical examination of text books and school editions of English classics. Lectures, recitations, and assigned reference work in the library. See also English 45.

First semester; T. Th., 11:00; Associate Professor JOHNSON, 24 W.

English Language and Literature

The aims of this division of English are; (a) a scientific knowledge of the origin and development of the English language; (b) a general acquaintance with English literature; (c) a specific knowledge of certain great authors, periods, and movements in English lit-

erature. Freshman English is a prerequisite to other courses in literature.

20. Old English. (3 Hrs.) Not open to freshmen. Required of all students who make English their major. Bright's Anglo-Saxon Reader; the essentials of Anglo-Saxon grammar; translations.

First semester; M. W. F., 9:00; Professor Cox, 32 W.

21. Old English. Beowulf. (3 Hrs.) Translations, with due attention to text, meter, literary history, etc. Prerequisite: English 20.

Second semester; M. W. F., 8:00; Professor Cox, 32 W.

22. Early Middle English. (2 Hrs.) Changes in the language. Critical reading of early middle English texts. Prerequisites; English 30. (Omitted in 1914-15.)

First semester; T. Th., 8:00; Professor Cox. 32 W.

23. The English Language. (2 Hrs.) This course presents a general survey of the history of the English language. It will include a study of the sources of our vocabulary; the growth of the literary language; slang and legitimate speech; euphemism; folk-etymology; transference of meaning; the romance of words.

Second semester; T. Th., 8:00; Professor Cox, 32 W.

24. Chaucer. The Canterbury Tales. (3 Hrs.) Required of all students who make English their major. During the first part of the semester the work will be chiefly linguistic, with interpretation of passages. The latter part of the semester will be devoted to a somewhat rapid reading, with such consideration of form, sources, etc., as are necessary to a clear understanding of what is read.

Second semester; M. W. F., 9:00; Professor Cox. 32 W.

25. Shakespeare. (3 Hrs.) Required of all students who make English their major. A critical study of three of Shakespeare's plays: King Lear, Winters' Tale, and Macbeth. Special attention will be given to exact interpretation and to those peculiarities of language in which Shakespearean usage differs from our own.

First semester; M. W. F., 11:00; Professor Cox, 32 W.

26. General Survey of English Literature. (2 Hrs.) Primarily for freshmen. Required of candiadtes for degrees. This course includes a historical view of English literature from its beginnings to the eighteenth century, and a close, critical study of a few classics from each of the great periods of literary development. The schedule is so arranged that this course can be taken in connection with Eng-

lish 1, in order to make up the five hours of freshman English required in the first semester.

First semester; sections T. Th. at 8:00, 9:00 and 11:00; Professors ARMSTRONG, Cox and BARBE.

27. General Survey of English Literature. (2 HRS.) Primarily for freshmen. Required of candidates for degrees. A continuation of English 26. The course is a survey of English literature in the eighteenth and nineteenth centuries. Prerequisite: English 1 and 26. The schedule is so arranged that this course can be taken in connection with English 2, in order to make up five hours of freshman English required in the second semester.

Second semester; sections T. Th. at 8:00, 9:00 and 11:00; Professors ARMSTRONG, Cox and BARBE.

28. Shakespeare. (4 Hrs.) Required of all students who make English their major. One play will be studied closely and critically, and a number of others will be read with attention to characters, plot development, and general literary interpretation.

Second semester; M. T. Th. F., 10:00; Professor ARMSTRONG, 31 W.

29. Milton. (2 Hrs.) This course will consider Milton's poems and the Areopagitica. Interpretation of passages; consideration of forms, sources, style, etc.; lectures. (Omitted in 1914-15.)

Second semester; T. Th., 8:00; Professor Cox, 32 W.

30. The Elizabethan Period. (2 Hrs.) From Tottel's Miscellany to the death of Spenser (1557-1599). The authors studied are Wyatt, Surry, Ascham, Llly, Sidney, Marlowe, and Spenser.

First semester; T. Th., 8:00; Professor Cox, 32 W.

31. The Queen Anne Period. (3 Hrs.) The course will deal with those writers who are specially representative of the classical spirit in English literature. The authors studied are Dryden, Swift, Addison, Steel, DeFoe, Pope and Gay. (Omitted in 1914-15.)

Second semester; M. W. F., 11:00; Professor Cox, 32 W.

32. English Literature. (3 Hrs.) From the death of Swift to the publication of the Lyrical Ballads (1745-1798). The authors stuided are Gray, Collins, Johnson, Goldsmith, Cowper, Sheridan, Burke, Burns, and Blake, with some attention to lesser authors.

First semester; M. W. F., 8:00; Professor BARBE, 33 W.

33. English Literature. (3 Hrs.) From the publication of the Lyrical Ballads to the death of Scott (1798-1832). The authors studied are Wordsworth, Byron, Shelley, Keats, and Scott.

First semester; M. W. F., 9:00; Professor ARMSTRONG, 31 W.

34. English Literature. (3 Hrs.) From the death of Scott to the death of Tennyson (1832-1892)—the poets. The chief authors studied are Tennyson, Browning, Arnold, Swinburne, Rossetti, and Morris. (Omitted in 1914-15.)

Second semester: M. W. F., 8:00; Professor ARMSTRONG, 31 W.

35. English Literature. (3 Hrs.) Prose writers since 1832. The chief authors studied are Carlyle, Ruskin, Dickens, Thackeray, George Eliot, and Stevenson. (Omitted in 1914-15.)

First semester: M. W. F., 11:00; Professor ARMSTRONG, 31 W.

36. The English Old Testament. (4 Hrs.) Required of all students who make English their major. A study of the Old Testament in English as literature; discussion of its literary forms and interpretation of some of its masterpieces.

First semester: M. T. Th. F., 10:00; Professor ARMSTRONG, 31 W.

37. The English New Testament. (2 Hrs.) A study of the New Testament in English as literature. Al the books wil be read and a few studied with attention to literary form and interpretation.

Second semester: T. Th., 8:00; Professor ARMSTRONG, 31 W.

38. The Short Story. (3 Hrs.) The short story as a form of literature. A study of its development and some of its types from Poe to the present time.

First semester: M. W. F., 11:00; Professor ARMSTRONG, 31 W.

39. American Literature. (3 Hrs.) A brief outline of its historical development and a study of selected works of representative authors. (Omitted in 1914-15.)

First semester; M. W. F., 9:00; Professor ARMSTRONG, 31 W.

40. The Novel. (3 Hrs.) The study in this course will include the historical development of the novel; its significance; relation to modern life; types; tendencies; reading of novels, reports; lectures.

Second semester: M. W. F., 11:00 Professor COX, 32 W.

41. Emerson. (3 Hrs.) A study of Emerson's prose and poetry. (Omitted in 1914-15).

Second semester; M. T. Th., 10:00; Professor BARBE, 33 W.

42. English Literature. (3 Hrs.) Study of an author. The entire production or the most important work of some selected author will be studied to gain a complete view. The author to be studied in 1914-15 is Tennyson.

Second semester: M. W. F., 9:00; Professor ARMSTRONG, 31 W.

43. Types of American Fiction. (2 Hrs.) A study of a few examples of the main types of American fiction.

Second semester: T. Th., 11:00; Professor ARMSTRONG, 31 W.

45. Literature in the Grades and the High School. (3 Hrs.) Intended especially for superintendents, principals, and teachers, but elective for students in all departments of the University. The course deals with the principles of literary criticism; application of tests; story-telling; general and special methods of presentation; the tributaries of the literary stream; courses of study.; bibliography. (Omitted in 1914-15.)

Second semester: M. W. F., 11:00; Professor COX, 32 W.

46. A Study of Poetry. (2 Hrs.) A discussion of metrical and rhythmical forms and of theories of English verse; the essential qualities and historical development of English poetry. The course will include a study of typical poems of the several periods to illustrate forms, principles, and theories. (Omitted in 1914-15.)

Second semester; T. Th., 9:00; Professor BARBE, 33 W.

47. Wordsworth. (3 Hrs.) A study of the poetry of Wordsworth.

Second semester; M. T. Th., 10:00; Professor BARBE, 33 W.

ENTOMOLOGY

Professor PEAIRS

1. General Entomology. (4 Hrs.) A study of the external structures, classification, habits, and local distribution of insects and their near relatives. Lectures and text-book. Laboratory and field work to consist of collecting and mounting the more common local insects, the classification of the insects collected, the study, aided by dissections and drawings, of the external anatomy of various types.

First semester; M. W. F., 11:00; Th., 2:00; A. Summer School.

2. Economic Entomology. (3 Hrs.) Required of juniors whose major is horticulture. A consideration of insects in their relation to farm products, more particularly horticultural products. Life histories and habits of injurious and beneficial species. General and special methods of insect control. Collection and identification of injurious forms and their work. Practice in the application of control measures. Prerequisite: Entomology 1.

Second semester; T. Th., 11:00, Th., 2:00; A.

3. Advanced General Entomology. (3 Hrs.) Origin and development of insects. Special structures, coloration, adaptations, struc-

tural and otherwise, internal anatomy. Lectures, assigned reference work and laboratory. Prerequisite; Entomology 1., Zoology 1.

Firts semester; hours to be arranged.

4. Systematic Entomology. (Credit in proportion to work done, not more than three hours per semester). A continuation of the work in classification begun in Course 1. Detailed studies of certain groups. Largely individual laboratory and field work. Pre-requisite; Entomology 1.

Either semester or Summer school. Hours to be arranged.

5. Advanced Entomology. (Credit in proportion to work done, not to exceed three hours per semester.) For students wishing to make entomology their major. Prerequisite: Entomology 1 and 3.

Either semester or Summer school; hours to be arranged.

6. Insects and Disease. (1 Hr.) Lectures on the more common insects known to be, or suspected of being, responsible for the transmission of diseases in man and the higher animals. Assigned reference work. Prerequisite: Entomology 1.

Second semester; hours to be arranged.

8. Thesis. (2 Hrs.) First and second semesters; hours to be arranged.

FARM MANAGEMENT

1. Farm Management. (3 Hrs.) This course is primarily designed for students in Agriculture, but credit will also be given for it in the College of Arts and Sciences. (See page 64.) For a detailed description of the course see announcements of the College of Agriculture, page 191. Prerequisite: Agronomy 2 and Soils 1.

Second semester; M. W. F., 11:00.

2. Rural Economics. (3 Hrs.) A regular elective course for students in the College of Arts and Sciences. The study of economics as related to all phases of rural life. See announcements of College of Agriculture, page 191.

Second semester; M. W. F., 9:00.

FRENCH

For announcement of courses in this subject see Romance Languages, page 115.

GEOLOGY AND MINERALOGY

Professor BROWN and Dr. PRICE.

6. General Mineralogy. (5 Hrs.) Designed for freshmen and sophomores. Required of students in mining engineering. This course treats of the principles of crystallography, physical and chemical properties, formation, uses and determination of the more important minerals. Text-book, Moses and Parsons' Mineralogy. Prerequisites: Trigonometry and some knowledge of chemistry and physics.

First semester: 8:00; Professor BROWN, 20 L.

4. Economic Geology. (3 Hrs.) Designed for juniors and seniors. Required of students in civil and mining engineering. This course treats of the occurrence and distribution of the non-metallic minerals, with attention to the geology of coal, oil and gas. Textbook, Reis' Economic Geology. Prerequisite: Geology 2 and 6.

First and second semesters; M. W. F., 11:00; Dr. PRICE, 21 L.

2. General Geology. (3 Hrs.) Designed for sophomores and juniors. Required of students in civil and mining engineering. This course treats of surface features, stratigraphy, and structural geology. Numerous excursions will be taken. Textbook, Chamberlain and Salisbury. Prerequisite: Some knowledge of chemistry.

First and second semesters; M.W.F., 11:00; Professor BROWN, 20 L.

8. Geology of West Virginia. (2 Hrs.) Designed for seniors and especially for teachers in high schools. This course is a physical history of the state and an account of its economic resources. Prerequisite: Geology 2.

First semester; T. Th., 11:00; Professor BROWN, 20 L.

7. Determinative Mineralogy. (5 Hrs.) Continuation of course 6. Required of students in mining engineering. This course consists of work in determining minerals and precise measurements with reflecting goniometer. Textbook, Moses and Parsons. Prerequisites: Some knowledge of chemistry and physics.

Second semester; 8:00; Professor BROWN, 20 L.

5. Economic Geology. (3 Hrs.) Designed for juniors and seniors. A continuation of course 4. This course gives an account of the occurrence of ore deposits and the distribution of metallic minerals. Textbook, Reis. Prerequisites: Geology 2, or Geology 6.

Second semester; M. T. F., 10:00; Professor BROWN, 20 L.

3. Historical Geology. (3 Hrs.) Designed for juniors and seniors. A continuation of Geology 2. This course gives an account

of the progress and development of plants and animals through the different ages of the earth. Laboratory work. Textbook, Chamberlain and Salisbury. Prerequisites: Geology 2, some knowledge of botany and zoology.

First and second semesters; M. W. F., 10:00; laboratory, W. 2:00; Dr. PRICE, 21 L.

9. History of Geology. (2 Hrs.) Designed for seniors and teachers. Largely a lecture course, showing the development of the sciences of geography and geology and discussing the discoveries and lives of its founders.

Second semester; T. Th., 11:00; Professor BROWN, 20 L.

10. Petrology and Building Stones. (2 Hrs.) A study of rocks with about 400 specimens of the various types from many countries. Adapted to the needs of engineers and architects.

Second semester; T. Th., 11:00; Professor BROWN, 20 L.

11. Physical Geography. (3 Hrs.) This course treats of the surface of the earth, its form, and the forces in action, with their effect on the life upon it. Designed especially for those who wish to teach physical geography. Outdoor trips. Textbook, Davis.

Second semester; M. W. F., 8:00; Dr. PRICE, 21 L.

NOTE:—Courses 9 and 10 will not both be given in any one year. Courses 3 and 11 will not both be given in the same semester.

GERMANIC LANGUAGES AND LITERATURE

Professor TRUSCOTT and Mr. KOELZ

1. Elementary German. (5 Hrs.) Pronunciation, grammar, reading of simple prose. Vos's or Thomas's Grammar; Super's Reader; Grimm's Maerchen.

First semester; section 1, 9:00; section 2, 11:00; Mr. KOELZ, 19 W.

2. Elementary German. (5 Hrs.) Continuation of course 1. Reading, dictation, elementary composition. Immensee; Hoeher als die Kirche; Kreuz und Quer durch Deutsche Lande.

Second semester; section 1, 9:00; section 2, 11:00; Mr. KOELZ, 19 W.

3. German Prose and Composition. (5 Hrs.) Rapid reading of prose by modern authors; translation of English into German; grammar; dictation. Pope's Composition.

First semester; 8:00; Mr. KOELZ, 19 W.

4. German Poetry and Composition. (5 Hrs.) One long poem and one drama; well known short poems. The work in composition

will be a continuation of that in course 3. Hermann und Dorothea; Die Jungfrau von Orleans; Klenze's Deutsche Gedichte.

Second semester; 8:00; Mr. KOELZ and Professor TRUSCOTT, 19 W.

5. **Germany and the Germans.** (3 Hrs.) A course of general information about the country and the people. Aus vergangener Zeit; Lodemann's Germany and the Germans; Tower's Germany of Today.

First semester; M. W. F., 8:00; Professor TRUSCOTT, 18 W.

6. **Advanced Composition.** (2 Hrs.) Translation; dictation; grammar. Bronson's Colloquial German; Prose Composition.

First semester; T. Th., 8:00; Professor TRUSCOTT, 18 W.

7. **Heine and Lyric Poetry.** (3 Hrs.) Reading from Heine's prose and poetry. Lyric poems by other authors. Kluge's Auswahl Deutscher Gedichte.

Second semester; M. W. F., 8:00; Mr. KOELZ, 19 W.

8. **Advanced Composition.** (2 Hrs.) A continuation of course 6.

Second semester; T. Th., 8:00; Professor TRUSCOTT, 18 W.

9. **Schiller.** (3 Hrs.) Study of his life. Gedichte; Don Carlos; Wallenstein; Wilhelm Tell.

First semester; M. W. F., 9:00; Professor TRUSCOTT, 18 W.

10. **Goethe.** (3 Hrs.) Study of his life. Gedichte; Werther's Leiden; Torquato Tasso; Faust, Part 1.

Second semester; M. W. F., 9:00; Professor TRUSCOTT, 18 W.

11. **History of German Literature.** (3 Hrs.) The history of the literature of 1749; reading and discussion of works representative of the most important authors and periods. As a hand-book Kluge's Geschichte der deutschen Nationalliteratur will be used.

First semester; M. W. F., 10:00; Professor TRUSCOTT, 18 W.

12. **History of German Literature.** (3 Hrs.) A continuation of course 11. The history of the literature from 1748 to 1900.

Second semester; M. W. F., 10:00; Professor TRUSCOTT, 18 W.

13. **Lessing.** (3 Hrs.) Study of his life. Minna von Barnhelm; Emilia Galotti; Nathan der Weise. Laocoon. (Omitted 1914-1915.)

First semester; hours to be arranged; Professor TRUSCOTT, 18 W.

15. **Modern German Drama.** (2 Hrs.) A reading course. The classical works of Goethe and Schiller not considered. Prerequisites: Courses 1, 2, 3, 4, and 5. (Omitted 1914-15.)

First semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

16. Modern German Drama. (2 Hrs.) A continuation of course 15. (Omitted 1914-15.)

Second semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

17. German Novel and Short Story. (2 Hrs.) A reading course in nineteenth century prose. Prerequisites: Courses 1, 2, 3, 4, and 5.

First semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

18. German Novel and Short Story. (2 Hrs.) A continuation of course 17.

Second semester; T. Th., 9:00; Professor TRUSCOTT, 18 W.

19. Scientific German. (3 Hrs.) Intended for students in the scientific departments. Prerequisites: Courses 1 and 2.

First semester; M. W. F., 11:00; Professor TRUSCOTT, 18 W.

22. Scientific German. (3 Hrs.) Continuation of course 19.

Second semester; M. W. F., 11:00; Professor TRUSCOTT, 18 W.

20. Newspaper German. (3 Hrs.) Newspaper and magazine articles on various subjects. Prehn's Journalistic German; New Yorker Staatszeitung. Prerequisites: Courses 1, 2, and 3.

Second semester; M. W. F., 11:00; Mr. KOELZ, 19 W.

21. Special Topics in German Grammar. (1 Hr.) For students who intend to teach German. Discussion of text-books. Registration conditional with the instructor.

Second semester; hour to be arranged; Professor TRUSCOTT, 18 W.

GREEK

Professor BISHOP

1. Elementary Greek. (5 Hrs.) White's Beginning Book, Greek Boy at Home.

First semester; 11:00; 23 W.

2. Elementary Greek. (5 Hrs.) White's Beginning Book, continued; Xenophon's Anabasis. Greek Boy at Home.

Second semester; 11:00; 23 W.

3. Xenophon's Anabasis. (4 Hrs.) Selections from Lucian (Bond and Walpole); Greek Boy at Home, original exercises based on text book.

First semester; M. T. Th. F., 10:00; 23 W.

4. Homer's Iliad. (4 Hrs.) Goodwin's and Monroe's Grammars; original exercises. (Omitted 1914-15).

Second semester; hours to be arranged; 23 W.

5. Attic Orators. (4 Hrs.) Jebb's Selections from the Attic Orators; Goodwin's Grammar; original exercises. (Omitted 1914-15.)
First semester; hours to be arranged; 23 W.

6. Tales From Herodotus. Homer's Odyssey. (4 Hrs.) Goodwin's Grammar; original exercises.
Second semester; hours to be arranged; 23 W.

7. Plato's Apology, Krito, and Euthyphro. (3 Hrs.) Hadley-Allen's Grammar; original exercises; Fowler's History of the Greek Literature.
First semester; M. W. F., 9:00; 23 W.

8. Demosthenes "On the Crown." (3 Hrs.) Hadley-Allen's Grammar; original exercises; Fowler's History of the Greek Literature.
Second semester; M. W. F., 9:00; 23 W.

9. Xenophon's Memorabilia. (3 Hrs.) Hadley-Allen's Grammar; original exercises; Fowler's History of the Greek Literature. (Omitted 1914-15.)
First semester; M. W. F., 9:00; 23 W.

10. Herodotus. (3 Hrs.) Hadley-Allen's Grammar; original exercises. (Omitted 1914-15.)
Second semester; M. W. F., 9:00; 23 W.
Courses 9 and 10.

11. Thucydides. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax; Fowler's History of Greek Literature for reference.
First semester; hours to be arranged; 23 W.

12. Aeschylus' Prometheus Bound. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax. (Omitted 1914-15.)
Second semester; hours to be arranged; 23 W.

13. Sophocles' Oedipus Rex. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax. (Omitted 1914-15.)
First semester; hours to be arranged; 23 W.

14. Euripides' Ion. (3 Hrs.) Goodwin's Moods and Tenses; Gildersleeve's Syntax.
Second semester; hours to be arranged; 23 W.

15. Greek Literature in Translation. (2 Hrs.) Masterpieces of Greek Literature; mythology; Capps' Homer to Theocritus.
First semester; T. Th., 9:00; 23 W.

16. Greek Life and Religion. (2 Hrs.) Greek religion; home life of the Greeks; Greek archaeology.

Second semester; T. Th., 9:00; 23 W.

17. The New Testament in Greek. Selected portions of the New Testament read, as circumstances may direct.

Second semester; hours to be arranged; 23 W.

HISTORY AND POLITICAL SCIENCE

The work offered in this department includes: (1) Continental European History, (2) English History, (3) American History, and (4) Political Science.

Instruction is given by lectures, text-book work, assigned collateral readings; preparation of papers, syllabi, and maps; special reports, recitations, and informal conferences.

Students are encouraged to observe and to read contemporary history and politics.

An association of those who are especially interested in the work of the department meets fortnightly for part of the year to hear the discussion of special topics and current problems.

An afternoon hour is designated for conferences and for direction of library work.

Continental European History

Professor CHITWOOD

Students who select continental European history as their principal study are advised to take at least one year in French or German, in the early part of the University course.

Among the books of reference, which every student will often need to consult, are Ploetz's Epitome of Universal History and some good historical atlas, such as Putzger's Historischer Schul-Atlas, or Dow's Atlas of European History.

7. History of the Ancient Hebrews. (2 Hrs.) The object of this course is to give the student such information as will help him to a better understanding of the Bible. The course covers the leading facts of Jewish history to the fall of Jerusalem and such portions of Egyptian and Assyrian and Babylonian history as are closely connected with the history of the Hebrews.

Second semester; T. Th., 11:00; 29 W.

9. History of Oriental Civilization. (2 Hrs.) This is a general culture course, and a fitting introduction to the study of history. It begins with a survey of primitive society and traces the rise and de-

velopment of human institutions. It directs especial attention to the early institutional history of India, Chaldea, Assyria, and Egypt and gives a survey of their contributions to civilization. (Omitted 1914-15.)

First semester; M. W. F., 11:00; 29 W.

10. History of Greece. (3 Hrs.) Open to freshmen. In this course the central idea is the development of civilized life as expressed in art, literature, and philosophy, in personal character and social customs, as well as in political ideas and institutions. An attempt will be made to gain an appreciation of what the Greeks were and what they gave to civilization.

First semester; M. W. F., 8:00; 29 W.

11. History of Rome. (3 Hrs.) Open to freshmen. The aim of this course is to trace the development of Roman institutions, character, and civilization, to explain the genius of the Roman people for organization and government, and to call attention to the contributions of Rome to modern civilization.

Second semester; M. W. F., 8:00; 29 W.

12. Mediaeval History. (3 Hrs.) Primarily for freshmen. This course begins with the period of institutional chaos following the break up of the Roman empire, and ends with the rise of modern states. Special attention is devoted to the three prime factors in the history of the middle ages,—the surviving civilization of Rome, the Christian church, and the German people. Political history, except in the case of France, is subordinated to the study of social and economic institutions.

First semester; M. T. F., 10:00; 29 W.

14. Modern European History. (3 Hrs.) Primarily for freshmen. This course covers the Reformation and the religious wars, the revolt of the Netherlands and the rise of the Dutch republic, the rise of Prussia, the period of French ascendency, the revolutionary and Napoleonic eras, the period of reaction, the unification of Germany and Italy, and the progress of democracy in the nineteenth century.

Second semester; M. T. F., 10:00; 29 W.

13. The Renaissance and the Reformation; 1300-1648. (3 Hrs.) A transition from mediæval to modern history. The development of the forces of modern civilization; survey of the economic, political, and intellectual conditions at the close of the middle ages; rise and decline of the papal hierarchy; the renaissance in Italy and Germany; the protestant revolution in the principal European states; the

counter-reformation; and the religious wars to the Treaty of Westphalia.

First semester; M. W. F., 9:00; 29 W.

15. Continental Europe in the Nineteenth Century. (3 Hrs.) This course is devoted to an intensive study of political and social conditions in the more important states of Europe during the last hundred years. Somewhat extended reading is required of students taking this course, and the results of this reading are presented in the form of papers and reports.

Second semester; M. W. F., 11:00; 29 W.

16. Seminar in European History. (2 Hrs.) For advanced history students only.

First semester; T. Th., 11:00; 29 W.

44. The French Revolution and Napoleonic Era. (3 Hrs.) A survey of the facts of European History from 1648 to 1789, with emphasis on the causes of the French Revolution, and an intensive study of the great political, social and military movements from 1789 to 1815.

Second semester; M. W. F., 9:00; 29 W.

45. Current European History. (1 Hr.) A study of current history and politics in Europe and the East.

First semester; Th., 10:00; 29 W.

English History

Professor CALLAHAN

Students will find it convenient to own Low and Pulling's Dictionary of English History and Gardiner's Atlas.

Courses 17 and 18 or 19 and 20 furnish a good foundation for the study of American history and law.

17. History of England to the Tudors. (3 Hrs.) Open to freshmen. A course in the general and institutional history of England. Special attention is given to political, economic, and social life and development; the more important subjects in constitutional history are considered, showing how England learned to govern herself.

First semester; M. T. Th., 10:00; 30 W.

18. History of England from the Tudors to the Present Time. (3 Hrs.) A continuation of course 17. The upbuilding of the British empire and adjustment to new conditions. The constitutional and religious struggles of the sixteenth and seventeenth centuries; economic and social changes; international relations; development of

a sea power; struggle for colonial and commercial supremacy; and the formation of modern conditions and institutions.

Second semester; M. T. Th., 10:00; 30 W.

19. English Social and Industrial History. (3 Hrs.) A survey of the facts of social and industrial evolution and their relation to political history and the interpretation of present conditons; a study of the enlargement of English life and the growth of English institutions.

First semester; M. W. F., 11:00; 30 W.

20. English Historical and Practical Politics: English Constitutional Law and History. (2 Hrs.) A seminar course arranged especially for advanced students in history who desire a suitable preparation for courses in American government and law. Prerequisites: A general outline knowledge of English history and course 17, 18 or 19. (Omitted 1914-15.)

First semester; T. Th., 11:00; 30 W.

American History

Professor CALLAHAN

All students of American history should have Channing and Hart's Guide, and McCoun's Historical Geography of the United States.

21. American Colonial History (1492-1776). (2 Hrs.) Open to freshmen. European back-ground; economic and political conditions. Evolution of discovery and settlement; growth of the English settlements into colonies; origin and development of American institutions; social and economic life; French colonial policy and the Anglo-French colonial conflict; adaptation of European civilization to American conditions; relation of the colonies to England; and the separation.

First semester; T. Th., 9:00; 30 W.

22. The Formation of the Union: American Political History 1776-1829.) (3 Hrs.) Primarily for freshmen. The revolution, the critical period, the formation of the constitution, the organization of the government, the struggle for neutrality and the development of nationality, the expansion of the Union, and the triumph of democracy. Special attention is given to political and constitutional development and to internal relations, but industrial and social growth is also treated.

First semester; M. W. F., 9:00; 30 W.

23. Division and Reunion: American Political History Since 1829. (3 Hrs.) Economic questions and the slavery contest; the growth of sectional differences, culminating in the secession movement; the Civil War and its problems, the overthrow of the slave power, and readjustment; a brief survey of the political and social questions since the Civil War, and of the development of the resources of the country.

Second semester; M. W. F., 9:00; 30 W.

In courses 21, 22, and 23, while special emphasis is laid on political and constitutional history, much attention is given to social and economic conditions.

26. History of American Diplomacy and Foreign Policy (1776-1909. (2 Hrs.) A general survey of the negotiations, treaties, arbitrations, congresses, etc., to which the United States has been a party; the fundamental principles of American policy; a study of the most important phases of American international relations; America's influence on international law and diplomacy; the state department and its most distinguished secretaries.

Second semester; T. Th., 9:00; 30 W.

29. American Social and Economic History. (3 Hrs.) Open to freshmen. This course is designed to furnish a basis for the proper study of economics. Beginning with the exploration and settlement that led to colonization, the student traces the growth and expansion of manufactures, agriculture, commerce, transportation, population, and labor from the simple agricultural communities of the colonies to the complex industrial and commercial organization of today.

Second semester; M. W. F., 11:00; 30 W.

32. History of West Virginia. (1 Hr.) A general course in social, industrial and political development. Considerable attention is given to railroad development and the growth of towns. Designed primarily for freshmen.

First semester; F., 10:00; 30 W. and L.

34. Seminar in American History. (2 Hrs.) A research course supplemented by lectures. Exclusively for students taking history as their major. Students are required to take notes, to investigate assigned topics, and to become acquainted with the original materials that are accessible. Proper attention is given to scientific methods of historical research, construction, and interpretation. Theses in American history are prepared in connection with this work. (Omitted 1912-13.)

Second semester; F., 9:00; L.

The attention of students taking American History is invitetd to the anouncements of the Bryan prize and the Tax Commission Prize on page 44.

Political Science

Professor CALLAHAN and Professor CHITWOOD

In all these courses, students should have a clear knowledge of the outlines of general history and especially of modern political history.

35. American Practical Politics: Government at Work. (2 Hrs.) A practical study of the actual workings of the government and politics of the United States, both state and national; the growth, spirit, machinery, operations, and functions of the government; the relations, rights and duties of citizens; the policies of state on public questions and problems. Special attention is given to the realities of governments and institutions, and to the personal interest and personal action which underlie constitutions and statutes.

Open to students who have a familiar knowledge of the period covered by courses 22 and 23. (Omitted 1914-15.)

Second semester; T. Th., 11:00; Professor CALLAHAN, 30 W.

36. European Historical and Practical Politics. (3 Hrs.) A historical study of the development of the political institutions, constitutional governments, and parties of the leading countries of modern continental Europe. Special attention is given to recent European politics. Open to advanced students who have had thorough courses in European history, especially course 14.

First semester; M. W. F., 11:00; Professor CHITWOOD, 29 W.

42. Anglo-American Historical Jurisprudence. (2 Hrs.) A study of the sources and growth of law and the development of legal institutions in connection with social and political history. Adapted especially to advanced students of history who are preparing for the study of law. (Omitted in 1913-14.)

First semester; T. Th., 11:00; Professor CALLAHAN, 30 W.

43. International Law and Practice of Diplomacy. (2 Hrs.) Open to students with a knowledge of modern history, especially courses 22 and 23.

Second semester; T. Th., 11:00; Professor CALLAHAN, 30 W.

HOME ECONOMICS

Assistant Professor COLWELL and Miss OLIVER

1. Selection and Preparation of Food. (5 Hrs.) A study of the chemical composition, relative physiological and economic value of the animal foods and their products; processes in the production of raw food material. Practical application is given in the methods by which heat is applied to the food material and a study of the effect of these methods upon the dietetic value of the food is made.

It is recommended that Chemistry 1 and 2 precede or parallel this course. Laboratory fee $2.00.

First semester; T. Th., 9:00; laboratory, M. W. F., 1:30; Assistant Professor COLWELL, 2 W.

2. Selection and Preparation of Food. (5 Hrs.) Continuation of course 1. A study of the chemical composition and relative physiological and economic value of the vegetable foods and their products; processes in the production of raw food material; principles of diet. Practical application of the methods by which heat is applied to the food material is given and a study is made of simple food combinations and their effect upon the dietetic value of the food. Prerequisite: Same as in course 1. Laboratory fee $2.00.

Second semester; T. Th., 9:00; laboratory, M. W. F., 1:30; Assistant Professor COLWELL, 2 W.

3. Hygiene. (2 Hrs.) Open to all women students. The purpose of this course is to give a knowledge of the laws fundamental to normal health and its maintenance and the relation of the individual to the home.

First semester; T. Th., 11:00; Assistant Professor COLWELL, 2 W.

4. Dietetics. (4 Hrs.) A study of digestion, absorption, assimilation of food constituents; methods of determining the food requirements; amounts of food required for the nutrition of the normal adult at rest and at work; diet for infancy, youth, old age; special diets; cost of family dietaries. Prerequisite Courses 1 and 2. Laboratory fee, $2.50.

First semester; M. W., 8:00; laboratory, T. Th., 8:00; Assistant Professor COLWELL, 2 W.

5. The House. (2 Hrs.) Evolution of the house; location and construction of modern houses are studied from the sanitary, economic and artistic point of view; study of house plans; designing of floor plans and elevation of a house for an estimated cost. Parallel course, Mechanical drawing 21.

First semester; T. Th., 10:00; Miss OLIVER, 2 W.

6. The House. (2 Hrs.) Continuation of Course 5. Interior decoration and furnishing; organization of the household; division of income; care of the home; problems of domestic service. Prerequisite: Home economics 5 and mechanical drawing 21. Parallel course: Steam, gas, and experimental engineering 127.

Second semester; T. Th., 10:00; Assistant Professor COLWELL and Miss OLIVER. 2 W.

7. Domestic Science in Public Schools. (4 Hrs.) This course includes the following subjects: Planning of the equipment; correlation with other subjects in the school; practice in planning courses. Prerequisite: Courses 1, 2, 4, 11, 12.

Second semester; M. T. Th. F., 8:00; Assistant Professor COLWELL, 2 W.

8. Special Problems. (3 Hrs.) Open to juniors and seniors. Thesis course. This course is designed to give advanced work in foods and related home economics problems. Lectures, conferences, laboratory work. Prerequisite: Home Economics 1, 2 and 4; Chemistry 1 and 2; Botany 1 and 2, or Zoology 1.

Second semester; M. W., 9:00; laboratory, T. Th., 1:15; Assistant Professor COLWELL, 2 W.

11. Household Arts Design. (3 Hrs.) The course includes the fundamental principles of design illustrated by nature study; a study of the works of modern artists and of woven and printed fabrics; evolution of design; theory of color and its application to problems of the home; creative exercises in the arts of design as directly applied in the printing of textiles, stenciling, basketry.

First semester; M. W. F., 1:30; Miss OLIVER, W.

12. Textiles. (3 Hrs.) Evolution of textiles; a study of the manufacturing conditions which effect the economic, hygienic and esthetic value of the material. Laboratory work includes simple household tests, microscopical and chemical; grading of market fabrics; laundry problems; the dyeing of textile fabrics; weaving; hand and machine work.

Second semester; M. W. F., 1:30; Miss OLIVER, W.

13. Manufacture and Selection of Clothing. (3 Hrs.) History of costume; costume designing; special problems in designs and color schemes; economic problems of the home-made garment as compared to factory product; a study of the clothing industry and the hygienic aspect of clothing.

First semester; hours to be arranged; Miss OLIVER, W.

HORTICULTURE

The following courses in the College of Agriculture may also be taken as elective courses in the College of Arts and Sciences. For a more detailed announcement of the courses see page 191.

2. Elementary Pomology. (3 Hrs.)
First semester; T. Th., 10:00; T. 2:00; Mr. AUCHTER, H.

3. Elementary Vegetable Gardening. (3 Hrs.)
Second semester; T. Th., 10:00, T. 2:00; Associate Professor DACY, H.

13. Plant Breeding. (3 Hrs.)
First semester; M. W. F., 11:00; Professor ALDERMAN, H.

ITALIAN

For courses in this subject see under Romance Languages, page 118.

LATIN

Professor TROTTER, Professor HARE and Associate Professor DARBY.

Courses 1, 2, 3 and 4 may be offered for entrance or taken as college work. In addition to these 5 and 6 are required of candidates for the A.B. degree, unless Greek is substituted for part or all. Students offering two units for entrance will begin with 1; those offering three units will begin with 3, and those offering four units with 5. Additional courses are required of those making Latin their major, depending on the amount offered for entrance. Students making Latin their major will also take History 10 and 11. (See page 94).

1. Cicero. (3 Hrs. or if offered to remove entrance conditions, one-half unit.) Primarily for freshmen offering two units for entrance. Required of all candidates for the A.B. degree. The first three orations against Catiline are read. The work includes a thorough review of forms and syntax; careful translation, literal and free; grammatical constructions and idioms, and political history of the period at which the orations were delivered. Prerequisite: two units of high school Latin.
First semester; 8:00; Professor HARE, 12 W.

2. Cicero. (Credit same as in course 1.) Continuation of course 1. The orations read are the fourth oration against Catiline, the oration for Archias, and the Manilian law. Prerequisite: Latin 1.
Second semester; 8:00; Professor HARE, 12 W.

3. Virgil. (Credit same as in course 1.) Primarily for freshmen offering three units for entrance. Required of all candidates for the A.B. degree. The first three books of the Aeneid are read. The work includes accurate translation, mythological and historical allusions, religious and social customs, grammatical constructions, and the metrical reading of the text. Composition once a week. Prerequisite: Latin 2.

First semester; M. T. Th. F., 9:00; Professor HARE, 12 W.

4. Virgil. (Credit same as in course 1.) Continuation of course 3. Books four, five and six are read, and short papers on assigned topics suggested by the text are required. Composition once a week. Prerequisite: Latin 3.

Second semester; M. T. Th. F., 9:00; Professor HARE, 12 W.

5. Cicero—De Senectute and De Amicitia; Livy XXI. (5 Hrs.) Reading and translation, review of grammar, study of assigned topics in Roman history and philosophy. Open to students who have had the preceding or four units of high school Latin.

First semester; first section, 9:00; Professor TROTTER, 13 W. Second section, 8:00; Associate Professor DARBY, 14 W.

6. Livy XXII, and Horace, Odes and Epodes. (5 Hrs.) Continuation of 5. Particular attention to the meters of Horace, his life and beliefs.

Second semester; first section, 9:00; Professor TROTTER, 13 W. Second section, 8:00; Associate Professor DARBY, 14 W.

7. Cicero—De Officiis. (3 Hrs.) Rapid reading and study of Cicero's ethical teachings.

First semester; M. W. F., 11:00; Associate Professor DARBY, 14 W.

8. Comedy. (3 Hrs.) Five or six plays of Plautus and Terence. Study of characters, development of plot, etc.

Second semester; M. W. F., 11:00; Associate Professor DARBY, 14 W.

9. Teachers' Course in Latin. (2 Hrs.) Study of indirect discourse in Cæsar and Livy, and composition; discussion of questions pertaining to the teaching of Latin, etc. No credit will be allowed in this course until the following course is taken.

First semester; T. Th., 8:00; Professor TROTTER, 13 W.

10. Teachers' Course in Latin. (2 Hrs.) Continuation of 9.

Second semester; T. Th., 8:00; Professor TROTTER, 13 W.

11. Horace—Satires and Epistles. (4 Hrs.) Selected satires and epistles are read, with attention to Horace's personal life.

First semester; M. T. Th. F., 10:00; Professor TROTTER, 13 W.

12. Roman Oratory. (4 Hrs.) Cicero's De Oratore and Tacitus's Dialogus de Oratoribus are read; preparation of the orator, his work and influence are discussed.

Second semester; M. T. Th. F., 10:00; Professor TROTTER. 13 W.

13. Juvenal. (3 Hrs.) Satires, with study of contemporaneous history.

First semester; hours to be arranged; Professor TROTTER. 13 W

14. Seneca. (3 Hrs.) Moral Essays with a study of his times Coördinate with Philosophy 6.

Second semester; hours to be arranged; Professor TROTTER. 13 W.

15. Roman Rhetoric. (2 Hrs.) Quintilian's Institutions.

First semester; hours to be arranged; Associate Professor DARBY, 14 W.

16. Lucretius. (2 Hrs.) De Rerum Natura, with a study of his doctrines.

Second semester; hours to be arranged; Associate Professor DARBY, 14 W.

17. Roman Life and Customs. (4 Hrs.) A study of the Romans in their homes, their social intercourse in business and professional life.

Second semester; M. T. Th. F., 10:00; Associate Professor DARBY, 14 W.

LAW

Credit will be given in the College of Arts and Sciences for courses in this subject given in the College of Law. See page 208.

LIBRARY SCIENCE.

Mr. ARNETT.

1. Library Methods. (2 Hrs.) An introductory course for the purpose of acquainting students with the University Library and the practice of library methods; instruction in the use of catalogues, indexes, and general reference books, and in the selection and purchases of books.

First semester; T. Th., 8:00; L.

2. Library Methods. (2 Hrs.) Theory and practice of library methods, including elementary cataloguing, classification, binding and repair of books, loan desk, etc.

Second semester; T. Th., 8:00; L.

MATHEMATICS

Professor EIESLAND and Professor HODGSON.

Courses 9, 10, 11 and 12 are intended for those who choose mathematics as a major subject. Courses 9, 10 and 11 are recommended for those whose major is physics.

1. **Algebra.** A three-hour course for which no college credit is given, intended primarily for freshmen who enter with a condition in mathematics or who cannot make a satisfactory record in course 3. If offered to remove entrance condition, one-half credit is given. Fractions, simple equations, involution, evolution, theory of exponents, quadratic equations, graphs. Hedrick's algebra for secondary schools.

First semester; T. Th. F., 11:00; Miss TURNER, 11 M.

2. **Solid Geometry.** (4 Hrs.) (If offered to remove entrance conditions, one-half unit.) This course includes also a short review of special topics in algebra, such as radicals, equations of the first and second degrees, etc.

Second semester; M. T. Th. F., 11:00; Miss TURNER, 10 M.

3. **Advanced Algebra.** (3 Hrs.) Radicals and theory of exponents, imaginaries, graphic algebra, logarithms, infinite series, elementary theory of equations with Horner's method, etc.

First semester; M. W. F., 9:00; section one; Professor EIESLAND, 11 M. Section two; Professor HODGSON, 10 M.

Second semester; M. W. F., 8:00; Professor HODGSON, 10 M.

4. **Plane Trigonometry.** (2 Hrs.) Prerequisite: algebra through quadratics.

First semester; T. Th., 9:00; section one, Professor EIESLAND, 11 M. Section two, Professor HODGSON, 10 M.

Second semester, T. Th., 11:00; Professor EIESLAND, 11 M.

5. **Plane Analytic Geometry.** (3 Hrs.) Prerequisites: courses 3 and 4.

Second semester; M. W. F., 9:00; section one, Professor EIESLAND, 11 M. Section two, Professor HODGSON, 10 M.

6. **Plane and Spherical Trigonometry.** (2 Hrs.) This course is a continuation of courses 3 and 4 and includes special topics in plane trigonometry and advanced algebra and also application of spherical trigonometry to elementary problems in astronomy.

Second semester; T. Th., 9:00; section one, Professor EIESLAND, 11 M. Section two, Professor HODGSON, 10 M.

7. Differential and Integral Calculus. (3 Hrs.) Prerequisites: courses 3, 4, 5 and 6.

First semester; M. W. F. Conference hours, T. Th., 8:00; Professor EIESLAND, 11 M.

8. Differential and Integral Calculus. (3 Hrs.) This course is a continuation of course 7.

Second semester; M. W. F. Conference hours, T. Th., 8:00; Professor EIESLAND, 11 M.

NOTE:—In courses 7 and 8, the part of each denoted as "Conference," two hours weekly, is not intended to increase the amount of prepared work. It really amounts to two hours weekly of study in preparation for the regular class recitation with the help and guidance of the teacher. Attendance at these conferences is required just as in the case of regular recitations.

9. Differential Equations. (3 Hrs.) Prerequisites: courses 7 and 8 or 7 and 14. This course is especially recommended to those who expect to take up advanced work, such as physical chemistry, mathematical physics and theory of electricity.

Second semester; T. Th. F., 10:00; Professor EIESLAND, 11 M

10. Theory of Determinants and Analytic Geometry of Space. (2 Hrs.) Prerequisites: courses 5, 7 and 8.

First semester; M. W., 3:00; Professor EIESLAND, 11 M.

11. Advanced Topics in Calculus. (2 Hrs.)

Second semester; T. Th., 3:00; Professor EIESLAND, 11 M.

12. Projective Geometry. (3 Hrs.)

Second semester; M. T. F., 10:00; Professor HODGSON, 10 M.

13. Analytic Geometry and Calculus. (5 Hrs.)

First semester; 11:00; Professor HODGSON, 10 M.

14. Differential and Integral Calculus. (5 Hrs.) Continuation of 13.

Second semester; 11:00; Professor HODGSON, 10 M.

Besides the above courses which are strictly of undergraduate nature, the following graduate courses are offered to those undergraduates who are prepared and to those who pursue work in mathematics for the Master's degree.

15. Introduction to Lie's Theory of Continuous Groups with Application to Differential Equations. Prerequisites: courses 9, 10 and 12. Three hours a week throughout one semester. Credit and hours to be arranged. Professor EIESLAND, 11 M.

16. Higher Plane Curves with Special Reference to Curves of the Third and the Fourth Order. First semester; credit and hours to be arranged. Professor HODGSON, 10 M.

17. Introduction to the Theory of Functions of a Complex Variable. Credit and hours to be arranged. Professor EIESLAND, 11 M.

18. Higher Algebra and Introduction to the Theory of Invariants. Credit and hours to be arranged. Professor HODGSON, 10 M.

Astronomy

1. Descriptive Astronomy. (3 Hrs.) Opportunity is given to those who wish to do sextant work or work with a portable transit. Second semester; hours to be arranged. Professor EIESLAND, 11 M.

MECHANICAL ENGINEERING

Credit not to exceed thirty hours will be given in the College of Arts and Sciences for certain courses in this subject given in the College of Engineering. See page 140.

MECHANICS AND APPLIED MATHEMATICS

Credit not to exceed thirty hours will be given in the College of Arts and Sciences for certain courses in this subject given in the College of Engineering. See page 140.

MUSIC

MISS HAYES

Note:—Fifteen hours of the following courses may be offered for credit in the College of Arts and Sciences. These courses are designed not only for students of the School of Music but for those desiring a general education.

1. **Harmony.** (5 Hrs.) First semester, 9:00.
2. **Harmony.** (5 Hrs.) Second semester, 9:00.
3. **Counterpoint.** (5 Hrs.) First semester, 11:00.
4. **Analysis.** (5 Hrs.) Second semester, 11:00.
5. **History of Music.** (4 Hrs.) First semester, 10:00.
6. **History of Music.** (4 Hrs.) Second semester, 10:00.

NOTE:—For outline of above courses see announcements of the School of Music on page 235.

PHILOSOPHY

Professor DEAHL and Assistant Professor CROW.

1. Psychology. (2 Hrs.) An introductory course in descriptive, physiological and experimental psychology, open to freshmen. The aim will be to make the course serve as a part of a liberal education and as a preparation for more advanced work in psychology and philosophy. General botany or animal biology should accompany or precede this course.

First semester; Tu., Th., 9:00; Professor DEAHL, 17 W.

2. Logic: Inductive and Deductive. (3 Hrs.) A study of the origin, development, structure, and function of knowledge. Practice in inductive methods and logical analysis. The nature and function of observation, method, judgment, hypothesis, inference, definition, syllogism, nature of evidence, etc., will be examined.

First semester; Tu., Th., 11:00, and third hour to be arranged; Professor DEAHL, 17 W.

3. Introduction to Philosophy. (2 Hrs.) A study of the meaning and scope of philosophy, its typical problems, its relations to science, society, government, morality, and religion.

Second semester; M. F., 10:00; Assistant Professor CROW, 16 W.

4. History of Philosophy. (3 Hrs.) A study of the history of reflective thinking on the problems of human life and the world order will be traced in outline with the emphasis on modern philosophic doctrines and scientific movements.

First semester; M. F., 10:00, and a third hour to be arranged; Assistant Professor CROW, 16 W.

5. History and Philosophy of Religion. (2 Hrs.) A brief history of the Hebrew religion and a more detailed study of the history and philosophy of the Christian religion from its origin to the present time. The study will make an examination of the development of the papacy, the protestant church, evolution and religion, and the present problems of the church.

Second semester; Tu. Th., 10:00, and a third hour to be arranged; Assistant Professor CROW, 16 W.

6. Ethics. (3 Hrs.) A study of the fundamental principles of morals in the light of modern science. The nature of moral education and the relation of conduct to character in social, industrial, and political questions of today will be emphasized.

First semester; Tu. Th., 9:00, a third hour to be arranged; Assistant Professor CROW, 16 W.

7. Comparative Psychology. (3 Hrs.) This course will aim to present the facts of animal life from the standpoint of behavior. These facts will be used to interpret the mental development of the race. Prerequisite: Philosophy 1.

Second semester; M. W. F., 10:00; Professor DEAHL, 17 W.

8. Modern Philosophy. (3 Hrs.) A study of representative systems, issues, and controversies of the present day together with their historic origins in philosophy.

Second semester; Tu. Th., 11:00; Professor DEAHL, 17 W.

PHYSICAL TRAINING

Director SWEETLAND and Miss OLIVER.

NOTE:—See also Physical Training, page 27.

The purpose of the physical department is the development or restoration of the physical well-being of students attending the University. The director examines each student and prescribes exercises for his individual need. Special attention is given to those who are constitutionally weak.

The work is graded as much as possible to suit the needs of the students. Careful attention is given to correction of bad postural habits and to all-around development and training of the body.

Men's Department

Director SWEETLAND.

1. Elementary Gymnastics, Theory and Practice. (1 Hr.) The object is to give each student the principles of physical training in theory and practice that he may attain physical efficiency. Study of the various forms of exercise, the different systems, their value, nomenclature, the use of apparatus.

First semester; M. T. Th., 4:00; G.

2. Gymnastics, Recreation. Open to all students for general exercise, bodily development, and recreation. Winter months only; hour to be arranged.

3. Track Athletics. For those who wish to train systematically for track and field athletics.

First semester; M. Th., 11:00; G.

4. General Athletic Training. Theory of training for all branches of athletics. Modern methods. Diet, sleep, and bathing. Special

work in the various branches of athletics including theory of coaching teams, etc.

Second semester; M. Th., 11:00; G.

Track Athletics. Theory and training. For track candidates. Spring months only; hour to be arranged; G.

Women's Department

Miss OLIVER.

10. Elementary Gymnastics. (1 Hr.) Tennis, basketball, graded gymnastics, apparatus work, controlling movements, folk dances, games.

First semester; hours to be arranged; 1 W.

11. Elementary Gymnastics. (1 Hr.) Continuation of physical training 10.

Second semester; hours to be arranged; 1 W.

12. Advanced Gymnastics. (1 Hr.) Basketball, tennis, light gymnastics, advanced apparatus exercises, æsthetic and rhythmic gymnastics, folk dancing. Prerequisite: Physical Training 10 and 11.

First semester; hours to be arranged; 1 W.

13. Advanced Gymnastics. (1 Hr.) Continuation of Physical Training 12.

Second semester; hours to be arranged; 1 W.

14. Normal Course in Theory and Practice of Gymnastics. (1 Hr.) Study of the theory of gymnastics, the values and limitations of gymnastics, the place of play and athletics, practice in teaching gymnastics and coaching athletics, emergency work, problems of personal hygiene. Prerequisite: Physical Training 10, 11, 12 and 13.

First semester; hours to be arranged; 1 W.

15. Physical Education in Elementary and Secondary Schools. (1 Hr.) Open to all students. Characteristics, tendencies, and needs of children and adolescents with special application to school conditions; practical problems of recess, playground, and gymnasium; the physical, social and moral questions.

Second semester; hours to be arranged; 1 W.

PHYSICS

Professor WAGGONER and Mr. HAKE.

NOTE:—For description of the physical laboratories see page 24.

The various courses offered in physics are designed to meet the

needs of the students in the Colleges of Arts and Sciences, Agriculture and Engineering. For students who expect to teach physics the laboratory offers unusual facilities for individual laboratory work and the construction of apparatus. There is a laboratory fee of $2.00 for each course in which laboratory work is given.

1. **Introductory Physics.** (3 Hrs.) Primarily for freshmen. required of students in the College of Agriculture, and recommended for all students in the College of Arts and Sciences who elect physics from the science group for the requirement of A.B. or B.Sc. The course is based on Kimball's College Physics and consists of lecture demonstrations and quizzes. The aim is to present the fundamental principles of physics and their application to every day life. See course 2 below. Prerequisite: plane geometry.

First semester; lectures, M. W., 8:00; Professor WAGGONER, 11 S; Quiz, F., 8:00; Mr. HAKE.

2. **Introductory Physical Laboratory.** (1 Hr.) This course accompanies, and is required of all students who take course 1. The course consists of individual, quantitative, determinations of the various physical constants, and occupies one laboratory period per week.

First semester; section 1, T., 2:00; section 2, Th., 2:00; Mr. HAKE and assistants. 14 S.

3. **Introductory Physics.** (3 Hrs.) A continuation of course 1 which is a prerequisite. See course 4 below.

Second semester; hours as in Course 1; Professor WAGGONER and Mr. HAKE, 11 S.

4. **Introductory Physical Laboratory.** (1 Hr.) A continuation of Course 2, which is a prerequisite.

Second semester; hours as in Course 2; Mr. HAKE and assistants, 14 S.

5. **Introductory Physical Laboratory.** A continuation of course 4. Recommended for those who expect to teach physics in secondary schools. Prerequisites: Physics, 1, 2, 3, 4 and Trigonometry.

Hours to be arranged; Mr. HAKE, 11 S.

6. **General Physics.** (4 Hrs.) Required of all candidates for engineering degrees, and recommended for all students in Arts and Sciences who elect physics from the science group for the requirements of A.B. and B.Sc. Lectures and recitations based on Duff's "Textbook of Physics." The course aims to give a thorough drill in the derivation of the mathematical statements of the laws of physics and their application to the solution of engineering problems. Prere-

quisites: analytical geometry and one full unit of entrance physics. See course 7 below.

First semester; T. W. Th. F., 9:00; Professor WAGGONER, 11 S.

7. General Physical Laboratory. (1 Hr.) This course accompanies and is required of all students who take Course 6. The work is designed primarily for engineering students and occupies one laboratory period per week. No student will be permitted to enter this course until he has presented to this department a satisfactory note book such as is specified in the entrance requirements for this University.

First semester; section 1, M., 9:00 to 11:00. Section 2, M., 2:00 to 4:00; Mr. HAKE, 2 S.

8. General Physics. (4 Hrs.) A continuation of Course 6 which is a prerequisite.

Second semester; hours as in Course 6.

9. General Physical Laboratory. (1 Hr.) A continuation of Course 7, which is a prerequisite.

Second semester; hours as in Course 7.

10. Electrical Measurements. (4 Hrs.) This course is designed for, and required of the candidates for the degree of B.S.M.E., and B.S.E.E. It consists of the study of photometry, magnetic properties of materials, the theory, calibration, and use of various electrical instruments. Prerequisites: Physics 6, 7, 8 and 9, and integral calculus.

First semester; T. Th., 10:00; laboratory, W., 2:00 to 4:00; Professor WAGGONER, 11 S.

16. Advanced Physical Laboratory. This work is individual laboratory work and the credit depends upon the amount of work done. Precise measurements in physics. A laboratory course open to students who have completed Physics 6, 7, 8, 9, and integral calculus.

Hours to be arranged; Professor WAGGONER and Mr. HAKE, 11 S.

18. Heat. (4 Hrs.) Lectures and laboratory; based on Edser's "Heat for Advanced Students." The laboratory work consists of the critical study of thermometers and pyrometers, their construction, calibration and use in high temperature measurements, electric furnace construction, quantitative determination of the various heat quantities and the melting and boiling points of various metals and fluids. Prerequisites: Physics 6, 7, 8, 9, and integral calculus. (Omitted in 1914-15.)

First semester; T. Th. F., 10:00; laboratory T., 2:00 to 4:00; Professor WAGGONER, 11 S.

19. Heat. (4 Hrs.) A continuation of Course 18 which is a prerequisite.

Second semester; hours as in Course 18.

22. Light. (4 Hrs.) Lectures and laboratory work; based on Edser's "Light for Students." The laboratory work consists of a photometric and spectrophotometric study of light sources, and the methods of artificial illumination, the study of the various optical lens systems, spectrum analysis and the use of the polariscope. Prerequisites: Physics 6, 7, 8, 9, and integral calculus. (Omitted 1914-15.)

First semester; T. Th. F., 10:00; laboratory, T. 2:00 to 4:00; Professor WAGGONER, 11 S.

23. Light. (4 Hrs.) A continuation of Course 22 which is a prerequisite.

Second semester; hours as in Course 22; Professor WAGGONER, 11 S.

25. Advanced Electricity and Magnetism. (4 Hrs.) Lectures and laboratory work. The lectures will be based on Starling's Electricity. Prerequisites: Physics 6, 7, 8, 9, and integral calculus.

First semester; T. Th. F., 10:00; laboratory T. 2:00 to 4:00; Professor WAGGONER, 11 S.

26. Advanced Electricity and Magnetism. (4 Hrs.) A continuation of Course 25 which is a prerequisite.

Second semester; hours as in Course 25.

PHYSIOLOGY

1. Physiology. (5 Hrs.) Intended for college students who do not care to go into the details of medical physiology. The course covers fully all the preparation needed for teachers' courses. A study of the function of the different organs of the body, illustrated by demonstrations of human organs and those of the lower animals, with a microscopic study of the most important tissues of the body. See page 227. Laboratory fee, $1.00.

Second semester; M. T. Th. F., 11:00; W., 2:00; Professor SIMPSON, 9 W.

PUBLIC SPEAKING

Professor NEIL.

The purpose of this department is to prepare students for the work of public speakers and readers; to train students to teach reading and public speaking in schools and colleges; and to enable

such students as do not expect to be professional speakers, to get the greatest possible good from the printed page and to express themselves in an easy and effective manner.

61. The Psychology of Speech. (3 Hrs.) Required of all students who make English their major. A practical study of the principles of psychology as employed in the development of imagination, conception, memory, and emotion for speech.

First semester; M. W. F., 11:00; 14 M.

62. The Psychology of Speech. (3 Hrs.) Continuation of Course 61. An application of the principles of psychology to the development of voice and action in speech. This course is designed to give the student an effective and unconscious use of the fundamental modes of emphasis: pause, change of pitch, inflection, subordination, movement, tone-texture, and touch. Prerequisite: Course 61.

Second semester; M. W. F., 11:00; 14 M.

63. Literary Analysis, Synthesis and Rendition. (2 Hrs.) Designed as supplementary study for students who have completed Courses 61 and 62. An analysis of all the psychological elements entering into a limited number of short classics from English literature; a synthesis of these elements into original thinking and feeling; and the training of this thought and feeling into effective delivery of the selections studied. Prerequisites: Courses 61 and 62.

First semester; T. Th., 11:00; 14 M.

64. The History of Oratory. (2 Hrs.) A study of the sources, characteristics, and results of the great periods of oratory. A study of the individual work and worth of the most noted orators. Extemporaneous reports on these subjects by the students. (Omitted 1914-15).

First semester; T. Th., 9:00; 14 M.

65. Original Orations. (2 Hrs.) Designed to follow Course 64 and to give the student thorough fundamental training in writing and presenting a formal speech. A study of the sources of clearness, elegance, force and persuasion; development of these in the individual student. (Omitted 1914-15).

Second semester; T. Th., 9:00; 14 M.

66. Argumentation and Debate. (2 Hrs.) Required of all candidates for the LL.B degree. A study of the laws of argumentation; training in the statement and analysis of subjects for debate; training in gathering and tabulating material for proof; training in construction of briefs and writing of arguments; oral presentation of short arguments and debates.

First semester; T. Th., 10:00; 14 M.

67. Advanced Argumentation and Debate. (2 Hrs.) Continuation of Course 66. Required of all candidates for the LL.B. degree. Critical study of noted specimens of argumentation; research work on live questions of the day; writing of briefs and arguments on these questions; extemporaneous speeches and debates.

Second semester; T. Th., 10:00; 14 M.

68. Dramatic Study of Shakespeare. (2 Hrs.) A psychological analysis of the setting, the characters, the plot and the purpose of one of Shakespeare's plays; synthesis of these elements into simple and effective acting; memoriter presentation of the plav studied. Prerequisite: Course 61. (Omitted 1914-15).

Second semester; T. Th., 11:00; 14 M.

69. Vocal Interpretation of the Bible. (2 Hrs.) Designed for advanced students in literature. The object of this course is to teach the student the literary worth of the Bible, its narrative, didactic, allegorical, dramatic, oratorical, lyric, and epic spirit. This is accomplished through psychological study and vocal rendition of Biblical selections. Prerequisite: Course 61.

Second semester; T. Th., 11:00; 14 M.

70. Extemporaneous Speaking. (2 Hrs.) Required of all candidates for the baccalaureate degree in the college of agriculture. An analysis of noted extemporaneous speeches, with reference to clearness, strength, and persuasion. A study of subjects appropriate for extemporaneous speaking. Research work upon these subjects. Presentation of speeches before the class.

First semester; M. F., 10:00; 14 M.

71. Extemporaneous Speaking. (2 Hrs.) A continuation of course 70.

Second semester; M. F., 10:00; 14 M.

72. Dramatization and Adaption. (1 Hr.) Open to students who have completed courses 61, 62, 63, and 68. A study in adapting short stories for public presentation. An examination of the qualities which fit a story for public use. Original adaptations required of each student. Practical training in the presentation of these.

First semester; W., 9:00; 14 M.

73. Dramatization and Adaption. (1 Hr.) A continuation of the study begun in course 72. Original work in dramatizing a novel. Practical training in the presentation of the story dramatized.

Second semester; W., 9:00; 14 M.

74. The Teaching of Reading and Speaking. (2 Hrs.) Open

to those who have completed courses 61, 62, 63 and 66. Designed as a special training for those who expect to teach public speaking, and for those who expect to teach reading in the high schools. An examination of the modern methods of teaching reading and speaking. Practical training in teaching these subjects.

First semester; M. F., 9:00; 14 M.

75. The Teaching of Reading and Speaking. (2 Hrs.) Open to those who have completed courses 61, 62, 63, 66 and 74. Practical training in the teaching of more advanced courses in reading and speaking. (Omitted in 1913-14).

Second semester; M. F., 9:00; 14 M.

Individual Lessons.

In addition to the class work in public speaking, a thorough and comprehensive course of individual instruction is offered. Each lesson occupies a full one-hour period, and is devoted to a single individual. This branch of the work is indispensable to all who wish to follow any line of public speaking. The instruction may be taken either as single lessons or in courses of one semester each.

Hours Open for Private Pupils:
First semester; M. W. F., 9:00.
Second semester; M. W. F., 9:00.

Tuition for Individual Lessons:

Single Lesson	$ 2.50
One Semester, one lesson a week	30.00
One Semester, two lessons a week	50.00

All class work in public speaking is free to students enrolled in the University.

ROMANCE LANGUAGES AND LITERATURE

Professor STATHERS, Associate Professor DARBY and Mr. SPIKER.

French

1. Elementary French. (5 Hrs.) Grammar, reading and composition. Stress is laid on the pronoun and verb. Constant practice in pronunciation and oral understanding. Fraser and Squair's Shorter French Course; Aldrich and Foster's French Reader.

First semester; first section, 8:00; Mr. SPIKER. L. Second section, 11:00; Professor STATHERS, 11 W.

2. Modern French. (5 Hrs.) A continuation of course 1. Grammar, reading, composition and oral understanding. Aldrich and Foster's French Reader, Laurie's Mémoires d'un Collégien, Bruno's Le Tour de la France.

Second semester; first section, 8:00; Mr. SPIKER, L. Second section, 11:00; Professor STATHERS, 11 W.

3. Fiction of the Nineteenth Century. (3 Hrs.) Reading and study of representative works from Mérimée, George Sand, Victor Hugo, Alphonse Daudet, Guy de Maupassant, Paul Margueritte, Pierre Loti, Anatole France.

First semester; M. F., 10:00; W., 4:00; Mr. SPIKER, L.

4. Advanced Grammar and Composition. (2 Hrs.) Detailed study of the parts of speech and review of verbs. Composition and dictation based on matter illustrative of the work. Given in connection with course 3.

First semester; Tu. Th., 10:00; Mr. SPIKER, L.

5. France and the French. (3 Hrs.) Study of the country from a commercial and geographical standpoint; Parisian and provincial life; conversation in French on questions of popular interest; collateral reading and reports.

Second semester; M. F., 10:00; W., 4:00; Mr. SPIKER, L.

6. Drama of the Nineteenth Century. (2 Hrs.) Reading and study of several plays chosen from the works of Alfred de Musset, Scribe, Augier, Dumas, Bornier, Sardou, Lemaître, Rostand. Given in connection with course 5.

Second semester; Tu. Th., 10:00; Mr. SPIKER, L.

7. The Classic School. (3 Hrs.) This course includes the study of the origin and development of classic literature and the lives and works of the leading authors from the Pléiade to Molière. Lectures, readings and reports.

First semester; M. W. F., 9:00; Professor STATHERS, 11 W.

8. The Classic School after Molière. (3 Hrs.) A continuation of course 7, comprising the study of the remaining authors of the seventeenth century and the principal authors of the eighteenth century. Essays, collateral reading and reports on related topics of interest of the period.

Second semester; M. W. F., 9:00; Professor STATHERS, 11 W.

9. French Syntax and Narration. (2 Hrs.) Careful review of the parts of speech and study and application of them by means of

original sentences. Narration in French of anecdotes and short stories both original and from texts.

First semester; Tu. Th., 9:00; Professor STATHERS, 11 W.

10. Advanced French Discourse. (2 Hrs.) A continuation of course 9. Study and application of idiomatic constructions in order to acquire facility in expression both in writing and in speaking. Paraphrasing and discussions in French based on subjects of moderate difficulty .

Second semester; Tu. Th., 9:00; Professor STATHERS, 11 W.

NOTE:—At least seven of the preceding courses are prerequisite to courses 11-22, which, as far as it is convenient, are given in French.

11. The Romantic Movement. (3 Hrs.) Lectures on the origin, development and decline of romanticism. Study of representative works of the first half of the nineteenth century. Essays, collateral reading and reports.

First semester; M. F., 10:00; W., 4:00; Professor STATHERS, 11 W.

12. French Literature since 1850. (3 Hrs.) Careful study of the different literary groups and schools of the period, critical reading of representative works of the leading authors and lectures on subjects of special interest.

Second semester; M. F., 10:00; W., 4:00; Professor STATHERS, 11 W.

13. The Novel in France. (2 Hrs.) Origin and development of the novel, reading and comparison of representative works from the earliest appearance to the present time. Lectures, essays and reports. (Omitted in 1914-15.)

First semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

14. French Lyric Poetry. (2 Hrs.) Critical reading of representative poems from François Villon to the present. Versification and poetic forms; lives and works of the leading poets and their groups and schools. (Omitted in 1914-15.)

Second semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

15. Early French Drama. (3 Hrs.) Origin of the drama, its early development during the Middle Ages and Renaissance period; study of representative dramatic productions of those periods. (Omitted in 1914-15.)

First semester; M. W. F., 8:00; Professor STATHERS, 11 W.

16. Advanced Composition and Phonetics. (3 Hrs.) Study of phonetics and idiomatic construction accompanied by a system-

atic review of French syntax. Phonetic transcription and daily themes. (Omitted in 1914-15.)

Second semester; M. W. F., 8:00; Professor STATHERS, 11 W.

17. Contemporary French Drama. (2 Hrs.) Lectures on the present tendencies of the French stage, its influence and its importance. Reading and reports on recent dramatic productions.

First semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

18. Topic from Nineteenth Century Literature. (2 Hrs.) This course is based upon the life and works of some author of the period or upon some literary group whose works and influence are studied. The subject for 1914-15 is the life and works of Chauteaubriand.

Second semester; Tu. Th., 10:00; Professor STATHERS, 11 W.

19. Historical French Grammar. (3 Hrs.) Study of the origin and development of modern French syntax from popular Latin through old French and the various formative periods of the language. Reading of selected works best suited to illustrate this development. (Omitted in 1914-15.)

First semester; M. W. F., 8:00; Professor STATHERS, 11 W.

20. Literature of the Sixteenth Century. (2 Hrs.) Lectures on the French Renaissance and study of the lives and works of Rabelais, Calvin, Marot, Montaigne. Essays and collateral reading. (Omitted in 1914-15.)

Second semester; Tu. Th., 8:00; Professor STATHERS, 11 W.

21. Old French. (2 Hrs.) Study of old French from the standpoint of derivation, inflection and syntax. Reading of selected and illustrative works. (Omitted in 1914-15.)

22. Literature of the Middle Ages. (2 Hrs.) General survey of the period and study of selections from leading literary productions from the eleventh to the close of the fifteenth century. (Omitted in 1914-15.)

Italian

31. Elementary Italian. (5 Hrs.) Pronunciation, grammar, easy reading, composition and oral understanding. Marinoni's Italian Grammar and Italian Reader.

First semester; 9:00; Associate Professor DARBY, 14 W.

32. Modern Italian. (5 Hrs.) A continuation of course 31. Reading in class of Manzoni's I Promessi Sposi and selections from other modern authors. Composition, dictation and conversation.

Second semester; 9:00; Associate Professor DARBY, 14 W.

33. Modern Italian Literature. (3 Hrs.) Study of the leading authors and reading of representative works from Italian literature of the eighteenth and nineteenth centuries. Collateral reading and reports.

First semester; M. F., 10:00; W., 2:00; Associate Professor DARBY, 14 W.

34. Introduction to Early Italian Literature. (3 Hrs.) Lectures on Dante and his precursors, reading and study of selections from Dante, Bocaccio, Petrarch and Tasso. Collateral reading and reports.

Second semester; M. F., 10:00; W., 2:00; Associate Professor DARBY, 14 W.

Spanish

41. Elementary Spanish. (5 Hrs.) Grammar and reading with practice in pronunciation, composition and oral understanding. Ingraham-Edgren's Spanish Grammar and Fontaine's Flores de España.

First semester; 9:00; Mr. SPIKER, L.

42. Modern Spanish. (5 Hrs.) Reading and study of three or four works selected from the following authors: Perez Galdós, Palacio Valdés, Valera, Alarcón, Blasco Ibáñez, Selgas, Moratín, Nuñez de Arce, Echegaray, Ayala, Avellaneda. Composition and conversation.

Second semester; 9:00; Mr. SPIKER, L.

43. Commercial Spanish. (3 Hrs.) Business correspondence and commercial terms; conversation in Spanish on topics relating to travel, daily life and questions of present interest. Themes, collateral reading and reports.

First semester; M. W. F., 11:00; Professor STATHERS and Mr. SPIKER, L.

44. Classic Drama and the Age of Cervantes. (3 Hrs.) Critical reading of selected works of Lope de Vega and Calderón and of extracts from Cervantes' Don Quijote de la Mancha. Papers on the lives, works and times of these authors.

Second semester; M. W. F., 11:00; Professor STATHERS and Mr. SPIKER, L.

ZOOLOGY

Professor REESE and Mr. ILLICK.

NOTE:—For description of zoological laboratories see page 25.

The courses in this department are intended to serve as a means of general culture and to prepare students to become investigators and teachers of zoology. A wide field is offered for investigation in the organization, functions, habits, and evolution of animal life. Upon the results of such investigations rest to a large extent the sciences of medicine, psychology, and sociology. Courses 1, 2, 9, and 10 are of especial interest to teachers. Courses, 1, 2, and 6 are required of students in the medical course.

1. Animal Biology. (4 Hrs.) A study chiefly of invertebrate animals, with an introduction to the vertebrates. The study of structure is conducted with constant reference to function and adaptation, and the student performs simple experiments on the behavior of protozoa, hydra, earthworm, etc. A few lectures deal with the structure and physiology of the cell, reproduction, etc. Laboratory fee $2.00.

First semester; T. Th., 8:00; laboratory, first section Th. F., 2:00-4:30; second section Tu. W., 2:00-4:30; Professor REESE and Mr. ILLICK, 50 W.

2. Vertebrate Zoology. (4 Hrs.) Dissection of the dogfish, frog, and cat. Lectures and recitations upon the biology, comparative anatomy, and evolution of vertebrates. Prerequisite: zoology 1 or an equivalent.

Second semester; same hours and fees as Zoology 1; Professor REESE and Mr. ILLICK, 49 and 50 W.

6. Vertebrate Embryology. (4 Hrs.) Cleavage, gastrulation and the formation of germ layers are studied in the frog and chick; the development of organs in the chick and pig. These materials are supplemented by sections, dissections, and cleared preparations of human embryos. Reése's Vertebrate Embryology. Prerequisite: Course 2 or an equivalent. Laboratory fee $3.00.

First semester; M. T. F., 10:00-12:00; W., 11:00; Professor REESE, 50 W.

9. Methods in Zoology. (2 or 3 Hrs.) A practical course in the methods of collecting, preserving, injecting, making microscopic preparations, etc. Prerequisite: Courses 1 and 2 or an equivalent. Laboratory fee $2.00 or $3.00.

First or second semester; hours to be arranged; Mr. ILLICK, 51 W.

10. Principles of Biology. (3 Hrs.) This course deals with the conditions of animal life and the means of adaptation. It includes the study of habits, reactions, food relations, coloration, regeneration, etc.; the course of organic evolution; eugenics; theories regarding the origin of species, heredity, etc. Lectures, recitations and assigned readings.

Second semester; M. W. F., 11:00; Professor REESE, 49 W.

15. Comparative Anatomy and Embryology. (Credit in proportion to work done.) An advanced course; to be taken ordinarily only after all of the preceding courses have been completed. Laboratory fee $2.00-$3.00.

First or second semesters; hours to be arranged; Professor REESE, 51 W.

19. Current Literature. (1 Hr.) Designed for advanced or graduate students. The purpose of this course is to familiarize the student with the character of the work that is being published in the best known American and foreign zoological journals.

First or second semester; hour to be arranged; Professor REESE, 52 W.

20. Research Work. (Credit in proportion to work done.) Properly qualified students may undertake research work upon the anatomy or physiology of animals.

First or second semesters; hours to be arranged; Professor REESE, 51 W.

21. Economic Zoology. (2 Hrs.) A brief survey of the more important representatives of all the groups of animals that are economically beneficial or injurious to man. Lectures, recitations and assigned readings will be supplemented by laboratory study of as many of the forms discussed as time will allow. Laboratory fee $1.00.

Second semester; T., 11:00; Th., 10:00-12:00; Professor REESE, 50 W.

NOTE: For courses in entomology see pages 86 or 190.

THE COLLEGE OF ENGINEERING AND MECHANIC ARTS

THE FACULTY

THOMAS EDWARD HODGES, A.M., LL.D., *President*

CLEMENT ROSS JONES, B.S.C.E., M.M.E., *Dean and Professor of Steam and Experimental Engineering*

FREDERICK LINCOLN EMORY, B.S., M.M.E., M.E., *Professor of Mechanics and Applied Mathematics*

RUSSELL LOVE MORRIS, C.E., *Professor of Railway and Highway Engineering*

EDWIN FAYETTE CHURCH, JR., M.S. in M.E., *Professor of Machine Design and Construction*

WILLIAM ELMORE DICKINSON, A.B., M.M.E., *Professor of Electrical Engineering*

EDWARD NATHAN ZERN, B.S., E.M., *Professor of Mining Engineering*

ROLAND PARKER DAVIS, S.B., M.C.E., *Professor of Structural and Hydraulic Engineering*

ALEXANDER DENNIS WILLIAMS, *Chief Engineer of the State Road Bureau, and Director of School of Good Roads*

*JOHN B. GRUMBEIN, B.S.M.E., *Associate Professor of Mechanical Engineering*

ALEXANDER HARDY FORMAN, M.M.E., PH.D., *Assistant Professor of Electrical and Experimental Engineering*

GEORGE WALTER GROW, B.S.M.E., *Instructor in Drawing and Machine Design*

THOMAS HOWARD CATHER, *Instructor in Machine Shop and General Foreman of Shops*

RAYMER EGBERT SEAMAN, *Instructor in Woodworking and Foundry Practice*

*On leave of absence for year of 1913-14.

RUFUS A. WEST, *Instructor in Metal Working and Stationary Engineer*

*_____, *Assistant in Foundry Practice*

ALEXANDER REID WHITEHILL, PH.D., *Professor of Chemistry*

SAMUEL B. BROWN, A.M., *Professor of Geology and Mineralogy*

FREDERICK LAWRENCE KORTRIGHT, D.SC., *Professor of Chemistry*

JOHN ARNDT EIESLAND, PH.D., *Professor of Mathematics*

CHAUNCEY WILLIAM WAGGONER, PH.D., B.S.C.E., *Professor of Physics*

JOSEPH ELLIS HODGSON, PH.D., *Professor of Mathematics*

DAVID DALE JOHNSON, A.M., *Associate Professor of English*

JOSEPH W. HAKE, B.S., M.S., *Instructor in Physics*

WILLIAM ARMSTRONG PRICE, JR., A.B., PH.D., *Instructor in Geology*

JOHN B. MITCHELL, *Student Assistant in Drawing and Experimental Engineering*

DEAN C. SKINNER, *Student Assistant in Drawing*

JAMES C. ALLEN, *Student Assistant in Drawing*

J. SHIELDS MILLER, *Student Assistant in Charge of Civil Engineering Instrument Room*

RALPH S. MARSHALL, *Secretary*

FACULTY COMMITTEES

Engineering Curricula. Dean JONES, Professors MORRIS, CHURCH, DICKINSON, DAVIS and ZERN.

Engineering Society. Professors EMORY, MORRIS, and DICKINSON, Assistant Professor GRUMBEIN, and Mr. GROW.

Library. Professor CHURCH, and Professor DAVIS.

Trade Literature. Assistant Professor GRUMBEIN.

*A practical foundry man is employed each year for the time the foundry is in operation.

ORGANIZATION

The College of Engineering contains the following departments:

Electrical engineering.
Machine design and construction.
Mechanics and applied mathematics.
Mining engineering.
Railway and highway engineering and surveying.
Steam, gas, and experimental engineering.
Structural and hydraulic engineering.
Summer school of mines.
School of good roads.

BUILDINGS AND EQUIPMENT

All instruction in engineering subjects is centralized in the Mechanical Hall. This building is located on the southeast corner of the campus and fronts the athletic field. It really consists of two buildings connected by covered passageways. The main building is 168½ feet long and three stories high, with a well-lighted basement running under its entire length. In this building are the lecture, recitation, drawing, and instruction rooms of the various engineering departments, the machine and woodworking shops, and the mechanical and electrical laboratories. The rear building, known as the power plant, is one story in height and contains the boiler and engine rooms, the forge shop, the foundry, and the sheet metal and pipe fitting shop. The drawing rooms, shops, power plant, and laboratories are equipped with modern apparatus and machinery for practical and experimental work.

In the drawing rooms are collections of models of bridges, furnaces, structures, mechanisms, engines, pumps, valves and valve gears; descriptive geometry models; sets of charts, state and government maps, surveys, photographs, engineering specifications, drawings, tracings, and blue prints. In connection with the drawing rooms there is a blue printing and photographic room and dark closet, equipped with electric and sun printing apparatus and photographic outfit.

The shops consist of a woodworking shop, forge shop, foundry, machine shop, and sheet metal and pipe fitting shop. Each work shop occupies a separate room and is independently equipped with suitable benches, measuring instruments, tools, shop appliances, and machines, such as are ordinarily installed in the larger engineering colleges and commercial shops. These afford ample facilities for performing all the fundamental operations in machine construction and for building machines of moderate size.

The power plant equipment consists of different types of steam and gas engines, direct-connected or belted to electric generators; a 100 K. W. Westinghouse condensing steam turbine direct-connected to a direct current generator; steam boilers, equipped for burning both gas and coal; an independently fired superheater; pumps, condensers, air compressors, steam traps and other auxiliary apparatus, providing the means for furnishing any desired kind of power. The power for the shops and laboratories is ordinarily obtained from a 50-H. P. Westinghouse direct current generator, from which it is distributed to motors or other apparatus, but this can be increased by operating independently, or in parallel, one or more additional machines driven by the steam turbine, the steam engines, or by a rotary converter connected with the city mains. Single and two-phase alternating current may be obtained from city mains or from a 20-K. W. motor generator set, and one, two, and three-phase current may be developed by a double-current dynamo driven as an inverse converter or as an alternating current dynamo.

The engineering laboratories are fitted with standard gauges, measuring, calculating, and recording instruments; apparatus and appliances for qualitative and quantitive experimental work in civil, mechanical, steam, hydraulic, electrical and mining engineering.

The testing laboratory is equipped with apparatus and machines for testing cement, iron, steel, brick, stone, and other materials of engineering. The principal machines and apparatus are an Olsen testing machine of 400,000 pounds capacity, taking tension and compression specimens up to six feet, and beams up to sixteen feet in length; a 50,000-pound Riehle testing machine; a 20,000-pound Riehle automatic and autographic testing machine; a 10,000-pound Olsen transverse testing machine; a 60,000 inch-pound Riehle-Miller torsion machine; two Fairbanks and one Olsen cement testers; a standard abrasion cylinder; a stone saw; besides smaller apparatus for testing cement, lubricating oils, and extension and deflection of materials.

The mechanical and steam laboratories contain small steam and gas engines, a compound air compressor with electrical and mechanical control, Westinghouse air brake apparatus, rotary air motors, a hot air engine, a small vertical steam boiler, a direct steam driven ventilating fan, dynamometers, friction brakes, condensers, injectors and ejectors, steam and gas engine indicators, revolution counters, planimeters, anemometers and apparatus for testing pressure gauges, indicator springs, thermometers, flow of steam and air through nozzles, etc. These are supplemented by the power plant equipment previously described, which affords facilities for steam

and gas engine trials and boiler tests with larger units, and also provides facilities for various lines of experimental investigation.

The electrical laboratory is provided with a number of small compound, shunt and series-wound direct current generators and motors, ranging from 2½ to 20 kilowatt, two and three-phase alternating current generators and motors of frequencies from 20 to 133 cycles, and capacities ranging from 2 to 20-kilowatt; rotary converter and motor generator sets; an 8-horse-power variable speed Stow motor, driving a 5-kilowatt, 2-phase, 220-volt, 10 pole alternator, which may give any frequency from 40 to 133 cycles; a 3-horse-power inter-pole motor; a 3-horse-power Thompson-Ryan variable speed motor, which, driving a small alternator, affords frequencies from 15 to 60 cycles; a 5-horse-power Lamme series, single-phase motor; a 3-horse-power self-starting, Century, single-phase induction motor; a 5-horse-power General Electric, single-phase motor; a 10-horse-power Stanley 2-phase induction motor equipped with compensator, condenser, and transformers; a 10-horse-power Sprague electric dynamometer; various types of Cutler-Hammer and other speed regulating and controlling apparatus; static, auto and constant-current transformers; a welding transformer; a high potential transformer for testing insulation, etc.; a Thodarson set of experimental apparatus for demonstrating many of the principles of electricity; a Queen & Co.'s testing set, with standards of capacity, induction and resistance, and with a potentiometer and standard cell, for standardizing electrical instruments; a General Electric oscillograph with accessories; standard and commercial indicating and recording measuring instruments; synchronism and power-factor indicator; dynamometers; permeameters; galvanometers; tachometers and speed counters; rheostats of various types and capacities; and eight distributing panels of switchboard. The photometric and the storage battery equipments of the department of physics are available in connection with the above. This is supplemented also by the larger generating and controlling units in the power plant.

The hydraulic laboratory equipment consists of a compound duplex steam pump supplying water to a closed steel pressure tank, from which run headers arranged for the insertion of orifices, nozzles, and pipes supplying the various hydraulic motors; concrete storage tanks; measuring tanks and weighing scales; Cascade water wheels; Venturi meter, water meter, steel weir-box, weir-gauges, and other minor measuring and controlling apparatus.

The road material testing laboratory equipment consists of a standard abrasion cylinder for testing paving brick; a standard three-gang motor driven Deval abrasion cylinder; motor driven ball mill; briquette machine; core drill; motor driven grinding lap and

stone saw; motor driven "Dorry" hardness testing machine; standard Page impact tester, with anvil for cementation tests; road-making tools, etc.

The passenger locomotive donated by the Baltimore & Ohio Railroad Company furnishes a nucleus for instruction in railway engineering.

The mining laboratory is equipped with drills, coal cutting machinery, air receiver, etc.; leading types of mine rescue apparatus, pulmotor, smoke chamber for use in training with rescue apparatus, devices for demonstrating the explosibility of coal dust, the William Clifford Collection of safety lamps, device for showing the length of cap with varying percentages of methane in mine air, models showing methods of working anthracite and bituminous seams of coal, small mine fan for experimental use in the study of mine ventilation, water gauge, recording barometer, hygrometer, etc.

The metallurgical laboratory is especially equipped for the study of fuels, such as coal, coke, gas and oil. In part it comprises analytical balances, Cary combination gas furnace, electric drying oven, water still, Emerson fuel calorimeter, apparatus for the analyses of gases, apparatus for the proximate analysis of coal and for determining the coking properties of coals, etc.

Transits, levels, compasses, etc., are provided for the use of students in land and mine surveying and in highway and railway construction.

The latest trade literature, catalogues, and reports of commercial developments in engineering are kept in classified files for students' reference. The University library has a thoroughly classified and indexed collection of the standard and latest books in engineering and the allied sciences, complete bound sets of the transactions of several scientific and engineering societies, and current issues and bound volumes of the principal scientific and technical periodicals.

FACILITIES FOR PRACTICAL WORK

The University is located in a region which affords the student unusual opportunities for practical observation and education in engineering. Morgantown is situated practically at the edge of three extensive coal regions; the Fairmont, the Deckers' Creek and the Connellsville fields. The nearest large workings in the Pittsburg coal seam are within a mile of the University, and the nearest in the Upper Freeport vein are only four miles away. Connellsville is only forty-five miles distant from Morgantown, and Pittsburg, the center of the world's greatest iron and steel industries, is 103 miles distant.

West Virginia's gas and oil districts approach within four miles of Morgantown and supply fuel for numerous factories. There are two brick works in the city, making building and paving brick from the local clay and shale; and twelve glass factories in the vicinity, producing pressed, plate, cut window, and bottle glass from the adjoining sandstone beds. At Mannheim is a large portland cement mill and another is being erected in the Deckers' Creek Valley.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE OF ENGINEERING

ADMISSION TO REGULAR CURRICULA

The subjects and number of units in each required for admission to the regular four-year engineering curricula are as follows:

English	3
Foreign Language	3
Algebra	1½
Plane and solid geometry	1½
Physics with laboratory	1
History	1
Free hand drawing	1
Elective	2
Total	14

Students are recommended to meet the foreign language requirements by offering two units in German and one unit in French. The electives may be selected from the list on page 60 of the catalogue.

Students who do not offer free hand drawing for entrance but offer full fourteen units including all other required subjects will be required to take at least two hours of free hand drawing in the college in addition to the regular curriculum.

ADMISSION WITH ADVANCED STANDING

Students from other institutions will be given credit for work already done in accordance with the general rules for advanced standing on page 32 of the catalogue, but at least one year of resident work will be required for any of the baccalaureate degrees in engineering.

ADMISSION AS SPECIAL STUDENTS

Students desiring to take special work in the College of Engineering and Mechanic Arts are required to conform to the general regulations of the University regarding special students. (See page 31.) Such students must give satisfactory evidence that they are prepared to take the desired studies advantageously; but if they subsequently desire to become candidates for a degree, or to take a regular curriculum in engineering, they must pass the required entrance examination for that year.

CLASSIFICATION OF STUDENTS

To be classified as a freshman in the College of Engineering a student must have credit for at least twelve units of entrance requirements; to be classified as a regular freshman he must have fulfilled all entrance requirements. To be classified as a sophomore he must have credit for twenty-six hours of college work; as a junior, sixty-four hours; as a senior, one hundred and four hours.

CREDIT FOR WORK DONE IN ABSENCE

Students of the College of Engineering are permitted to apply for advanced standing for not more than six hours credit for practical work in the following subjects done in the field, shops, or drafting room, during vacation or other periods of absence from the University; Woodworking (Courses 1, 2, and 3), Pattern making (4), Foundry practice (5), Forging (7), Metal working (9), Pipe fitting (10), Bench and vise work (12), Machine tool work (14), Machine construction (15), Electrical construction (18), Mechanical drawing (20, 22, 24, and 25.)

THE ENGINEERING CURRICULA

The College of Engineering offers to students three different kinds of curricula:

1. Regular curricula for undergraduate students.

2. Curricula for graduate students.

3. Special curricula for special students and students of other colleges.

REGULAR CURRICULA FOR UNDERGRADUATE STUDENTS

1. A four-year curriculum leading to the degree of Bachelor of Science in Civil Engineering.

2. A four-year curriculum leading to the degree of Bachelor of Science in Mechanical Engineering.

3. A four-year curriculum in electrical engineering leading to the degree of Bachelor of Science in Electrical Engineering.

4. A four-year curriculum leading to the degree of Bachelor of Science in Engineering of Mines.

REQUIREMENTS FOR GRADUATION

To receive any of the baccalaureate degrees conferred in the College of Engineering the student must have satisfied all the entrance requirements as stated above on page 129 and must have received credit for one hundred and forty-eight semester hours, including four weeks summer practice equivalent to four semester hours. The particular curriculum and distribution of work is prescribed for each degree as stated below.

THESES

Every candidate for a baccalaureate or graduate degree in engineering will be required to prepare a thesis on some subject relating to a special branch of engineering or other department of applied science. The thesis must be either a design or a review of a machine, structure, or of some process belonging to a department of scientific investigation. It must be fully elaborated and accompanied by the necessary working drawing or models required for the proper elucidation of the subject of the thesis. With its accompanying drawings it will be presented for approval, first to the instructor under whose guidance it has been prepared, then to the head of the department in which the degree is to be conferred. A typewritten copy of the thesis, prepared according to official specifications for theses (see page 38) and signed by the instructor in charge and the head of the department, must be placed in the University library before graduation. A small fee to cover the cost of binding must be paid.

ENGINEERING SOCIETY

The Engineering Society is conducted by the students of the College of Engineering under the direction of a faculty committee. The society meets once in two weeks for the investigation and discussion of scientific subjects. All engineering students are urged to join the society immediately upon entrance to the college and to perform such work as its rules require. Students taking any of the four-year curricula leading to the baccalaureate degrees in engineering are required to engage actively in the work of the society during the third and fourth years. A credit of one hour will be given for the work of each of the last two years

UNDERGRADUATE CURRICULUM IN CIVIL ENGINEERING

Leading to the Degree of Bachelor of Science in Civil Engineering

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00	Tu.W.F. or M.W.Th.	3	
Advanced algebra	(Math. 3)	9:00	M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00	M.W.F., 2:00, W.	4	
Military science 1		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00	M.F.	2	
Woodworking	(Eng'g 1)	2:00	Tu.Th., 8:00 S. 1st half semester	1½	
Elements of metal working	(Eng'g 9)	2:00	Tu.Th., 8:00 S. 2nd half semester	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng. 2)	8:00	Tu.W.F. or M.W.Th.	3	
Analytical geometry	(Math. 5)	9:00	M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00	Tu.Th.	2	
Land surveying	(Eng'g 100)	10:00	M.Th.F.	3	
Inorganic chemistry	(Chem. 2)	11:00	M.W.F., 2:00 M.	4	
Military science 2		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00	Tu.Th.	2	18

Second Year—First Semester

Differential calculus	(Math 7)	8:00	M.W.F. and Study period Tu.Th.	3	
General physics	(Physics 6, 7)	9:00	Tu.W.Th.F., 2:00 M.	5	
Descriptive geometry	(Eng'g 26)	10:00	Tu.Th.F.	3	
Adv. surveying	(Eng'g 102)	10:00	M., 8:00 S	2	
Military science 3		12:00	M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00	Tu.Th.	2	
Mechanical drawing	(Eng'g 25)	2:00	W.F.	2	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00	M.W.F. and Study period Tu.Th.	3	
General physics	(Physics 8, 9)	9:00	Tu.W.Th.F., 2:00 M.	5	
Statics	(Eng'g 70)	10:00	Tu.Th.F.	3	
Mechanism	(Eng'g 29)	11:00	Tu.Th.	2	
Topographical surveying	(Eng'g 103)	9:00	M. & 2:00 —	2	
Military science 4		12:00	M.Tu.W.Th.	1	
Mechanism drawing	(Eng'g 30)	2:00	Tu.Th.	2	18

Summer Practice (Four Weeks)

Summer field practice	(Eng'g 110)	Daily	8:00—12:00 1:00— 5:00	4

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00	Tu.W.Th.F.	4	
Railway location	(Eng'g 104)	9:00	Tu.W.F.	3	
Elementary steam and gas engineering	(Eng'g 120)	10:00	M.Tu.F.	3	
General geology	(Geology 2)	11:00	M.W.F.	3	
Applied electricity	(Eng'g 51)	11:00	T.Th., 2:00 M. or Tu.	3	
Mechanical lab.	(Eng'g 130)	8:00	S.	2	
Engineering Society	(Eng'g 162)	7:30	p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00	Tu.Th.F.	3	
Hydraulics	(Eng'g 73)	8:00	M.W.	2	
R'w'y maintenance	(Eng'g 105)	9:00	M.W.F.	3	
Roofs and bridges	(Eng'g 141)	10:00	M.Tu.Th. 2:00 to 5:00 Th.	4	
Economic geology	(Geology 4)	11:00	M.W.F.	3	
Mechanical lab.	(Eng'g 131)	8:00	S.	2	
Engineering Society	(Eng'g 162)	7:30	p.m. F.	1	18

Fourth Year—First Semester

Water supply engineering	(149)	8:00	M.W.F.	3	
Sanitary engineering	(148)	8:00	Tu.Th.	2	
Masonry and foundations	(Eng'g 146)	9:00	M.W.F.	3	
Bridge design	(Eng'g 142)	9:00 10:00 2:00	Tu. Lecture Tu. 9:00 Th. W.F. Drawing	5	
Tunnelling	(Eng'g 88)	10:00	M.F.	2	
Roads and pavements	(Eng'g 106)	11:00	M.W.F.	3	
Engineering Society	(Eng'g 163)	7:30	p.m. F.		18

Fourth Year—Second Semester

*Railroad econ.	(Eng'g 107)	11:00	Tu.Th.F. 3	5	
and Highway engineering	(108)	8:00	Tu.Th. 2		
or *Hydraulic con.	(Eng'g 150)	8:00	Tu.Th.F., 11:00 W. 4		
and Hydraulic measurements	(Eng'g 151)	2:00	to 5:00 M. 1		
Concrete const.	(Eng'g 147)	9:00	Tu.Th. 2:00 W.F.	4	
Adv. structures	(Eng'g 143)	9:00	M.W.F.	3	
Contracts and specifications	(Eng'g 161)	8:00	M.W.	2	
Thesis	(Eng'g 113 or 152)		To be arranged	3	
Engineering Society	(Eng'g 163)	7:30	p.m. F.	1	18

*Option selected should be announced at the beginning of the fourth year.

UNDERGRADUATE CURRICULUM IN MECHANICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Mechanical Engineering

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00	M.W.Th. or Tu.W.F	3	
Advanced algebra	(Math. 3)	9:00	M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00	M.W.F., 2:00 M.	4	
Military science 1		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00	W.F.	2	
Woodworking	(Eng'g 1)	2:00	Tu.Th., 8:00 S. 1st half semester	1½	
Foundry	(Eng'g 5)	2:00	Tu.Th. 8:00 S. 2nd half semester	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng. 2)	8:00	M.W.Th. or Tu.W.F.	3	
Analytical geometry	(Math. 5)	9:00	M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 2)	11:00	M.W.F., 2:00 W.	4	
Surveying	(Eng'g 101)	10:00	Tu. Practice Th.	1	
Military science 2		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00	M.F.	2	
Pattern making	(Eng'g 4)	2:00	Tu., 8:00 S.	2	18

Second Year—Second Semester

Differential calculus	(Math. 7)	8:00	M.W.F. Study periods Tu.Th.	3	
General physics	(Physics 6, 7)	9:00		5	
Descriptive geometry	(Eng'g 26)	10:00	Tu.Th.F.	3	
Military science 3		12:00	M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00	Tu.Th.	2	
Mechanical drawing	(Eng'g 24)	2:00	W.F.	2	
Forging	(Eng'g 7)	2:00	M. 8:00 S. 1st half	1	
Bench and vise work	(Eng'g 12)	2:00	M.S., 2nd half	1	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00	M.W.F. Study periods Tu.Th.	3	
General physics	(Physics 8, 9)	9:00		5	
Statics	(Eng'g 70)	10:00	Tu.Th.F.	3	
Mechanism	(Eng'g 27)	11:00	W.F.	2	
Military science 4		12:00	M.Tu.W.Th.	1	
Mechanism drawing	(Eng'g 28)	2:00	W., 8:00 S.	2	
Machine work: Sheet metal work	(Eng'g 13)	2:00	Tu.Th. 2nd half	1	
Pipe fitting	(Eng'g 10)	2:00	Tu.Th. 1st half	1	18

Summer Practice (Four Weeks)

Machine tool work	(Eng'g 14)	Daily—8:00-12:00 and 1:00- 5:00	4	

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00 T.W.Th.F.	4	
Thermodynamics	(Eng'g 121)	9:00 M.W.F.	3	
Electricity and mag.	(Physics 10)	10:00 Tu.Th., 2:00 W.	3	
Valve gears	(Eng'g 31)	11:00 M.W.	2	
Mechanical lab.	(Eng'g 130)	2:00 F.	2	
Machine drawing	(Eng'g 32)	2:00 Tu.Th.	2	
Machine const.	(Eng'g 15)	2:00 M., 8:00, S.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00 Tu.Th.F.	3	
Hydraulics	(Eng'g 73)	8:00 M.W.	2	
Heat engines	(Eng'g 122)	9:00 M.W.F.	3	
Machine design	(Eng'g 35)	10:00 M.F. 11:00 W.	3	
Mechanical lab.	(Eng'g 131)	2:00 Th.	2	
Machine drawing	(Eng'g 36)	2:00 M.F.	2	
Shop methods	(Eng'g 16)	11:00 M.F.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.	1	18

Fourth Year—First Semester

Power plant design	(Eng'g 123)	8:00 M.W.F.	3	
Electrical eng'g.	(Eng'g 53)	9:00 M.F.	2	
Indust. management	(Eng'g 46)	9:00 W.	1	
Steam engine design	(Eng'g 39)	10:00 M.Tu.F.	3	
or Adv. mach. design	(Eng'g 37)	11:00 M.F. 9:00 Tu.		
Structural eng'g.	(Eng'g 144)	11:00 Tu.W.	2	
Design. and drawing	(Eng'g 40)	2:00 Tu.W.Th.	3	
or Design and D.	(Eng'g 38)	2:00 Tu.W.Th.		
Engineering lab.	(Eng'g 132)	8:00-12:00 Th.	2	
Electrical lab.	(Eng'g 62)	2:00 F	2	
Engineering Society	(Eng'g 163)	7:30 p.m. F.		18

Fourth Year—Second Semester

Elements of electrical eng'g	(Eng'g 544)	10:00 M.F.	2	
Contracts and spec.	(Eng'g 161)	8:00 M.W.	2	
Electrical lab.	(Eng'g 63)	2:00 Tu.	2	
Engineering lab.	(Eng'g 133)	8:00 Th.	2	
Design. and drawing	(Eng'g 41)	2:00 M.W., 8:00 S.	3	
Thesis	(Eng'g 49 or 135)	To be arranged	3	
Engineering Society	(Eng'g 163)	7:30 p.m. F.	1	
*Optional from following list			3	18
Historical development of power machinery	(Eng'g 128)	9:00 M.W.F.	3	
Steam turbines	(Eng'g 125)	9:00 M.W.F.	3	
Gas engines	(Eng'g 126)	11:00 M.W.F.	3	
Hydraulic const.	(Eng'g 150)	8:00 Tu.Th.F. and 11:00 W.	4	
Gas engine design	(Eng'g 45)	To be arranged	3	
Mach. and mill work	(Eng'g 42)	9:00 M.W.F.	3	
Heat and vent.	(Eng'g 127)	8:00 M.Tu.W.	3	
Steam boilers	(Eng'g 124)	To be arranged	2	

*Selection to be made at beginning of the fourth year.

UNDERGRADUATE CURRICULUM IN ELECTRICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Electrical Engineering

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00	M.W.Th. or Tu.W.F.	3	
Advanced algebra	(Math. 3)	9:00	M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00	M.W.F., 2:00 Th.	4	
Military science 1		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00	Tu., 8:00 S.	2	
Woodworking	(Eng'g 1)	2:00	M.W.F., 1st half	1½	
Foundry	(Eng'g 5)	2:00	M.W.F., 2nd half	1½	18

First Year—Second Semester

Rhetoric and comp.	(Eng'g 2)	8:00	M.W.Th. or Tu.W.F.	3	
Analytical geometry	(Math. 5)	9:00	M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 2)	11:00	M.W.F. and 2:00 W.	4	
Surveying	(Eng'g 101)	10:00	Tu. Practice S.	1	
Military science 2		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00	Tu.Th.	2	
Pattern making	(Eng'g 4)	2:00	M.F.	2	18

Second Year—First Semester

Differential calculus	(Math. 7)	8:00	M.W.F. Study periods T.Tu.	3	
General physics	(Physics 6, 7)	9:00		5	
Descriptive geometry	(Eng'g 26)	10:00	Tu.Th.F.	3	
Military science 3		12:00	M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00	Tu.Th.	2	
Mechanical drawing	(Eng'g 24)	2:00	M., 8:00 S.	2	
Forging	(Eng'g 7)	2:00	W.F. 2nd half	1	
Bench and vise work	(Eng'g 12)	2:00	W.F. 1st half	1	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00	M.W.F. Study periods T.Th.	3	
General physics	(Physics 8, 9)	9:00		5	
Statics	(Eng'g 70)	10:00	T.Th.F.	3	
Mechanism	(Eng'g 27)	11:00	W.F.	2	
Military science 4		12:00	M.T.W.Th.	1	
Mechanism drawing	(Eng'g 28)	2:00	W., 8:00 S.	2	
Machine work: sheet metal work	(Eng'g 13)	2:00	M.F. 1st half	1	
Pipe fitting	(Eng'g 10)	2:00	M.F. 2nd half	1	18

Summer Practice (Four Weeks)

Machine tool work	(Eng'g 14)	8:00 to 12:00 1:00 to 5:00		4

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00 Tu.W.Th.F.	4	
Thermodynamics	(Eng'g 121)	9:00 M.W.F.	3	
Valve gears	(Eng'g 31)	11:00 M.W.	2	
Electricity and mag.	(Physics 10)	11:00 Tu.Th. 2:00 W.	3	
Mechanical lab.	(Eng'g 130)	8:00-12:00 S.	2	
Machine drawing	(Eng'g 33)	2:00 M.Th.	2	
Machine const.	(Eng'g 15)	2:00 Tu.F.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00 Tu.Th.F.	3	
Heat engines	(Eng'g 122)	9:00 M.W.F.	3	
Machine design	(Eng'g 35)	10:00 M.F. 11:00 W.	3	
Direct current mach.	(Eng'g 52)	11:00 Tu.Th. 2:00 T.	4	
Mechanical lab.	(Eng'g 131)	8:00 S.	2	
Machine drawing	(Eng'g 36)	2:00 M.F.	2	
Engineering Society	(Eng'g 162)	7:30 p.m. F.	1	18

Fourth Year—First Semester

Power plant design	(Eng'g 123)	8:00 M.W.F.	3	
Theory of alternating currents	(Eng'g 55)	10:00 M.F. 9:00 W.	3	
Industrial management	(Eng'g 46)	9:00 W.	1	
Electric traction and transmission	(Eng'g 57)	11:00 M.W.F.	3	
Electrical lab.	(Eng'g 60)	8:00 Tu.	2	
Engineering lab.	(Eng'g 132)	8:00 Th.	2	
Designing and drawing	(Eng'g 59)	2:00 Tu.W.Th.	3	
Thesis	(Eng'g 69)	To be arranged	1	
Engineering Society	(Eng'g 163)	7:30 p.m. F.		18

Fourth Year—Second Semester

Hydraulics	(Eng'g 73)	8:00 M.W.	2	
Alternating current machinery	(Eng'g 56)	9:00 M.W.F.	3	
Electric lighting and signaling	(Eng'g 58)	11:00 M.W.F.	3	
Electrical lab.	(Eng'g 61)	8:00 Tu.	2	
Engineering lab.	(Eng'g 133)	8:00 Th.	2	
Designing and drawing	(Eng'g 41)	2:00 M.W., 8:00 S.	3	
Thesis	(Eng'g 69)	To be arranged	2	
Engineering Society	(Eng'g 163)	7:30 p.m. F.	1	18

UNDERGRADUATE CURRICULUM IN MINING ENGINEERING

Leading to the Degree of Bachelor of Science in Engineering of Mines

First Year—First Semester

Rhetoric and comp.	(Eng. 1)	8:00	Tu.W.F. or M.W.Th.	3	
Advanced algebra	(Math. 3)	9:00	M.W.F.	3	
Plane trigonometry	(Math. 4)	9:00	Tu.Th.	2	
Inorganic chemistry	(Chem. 1)	11:00	M.W.F., 2:00 Tu.	4	
Military science 1		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 20)	2:00	Th.S. 8:00	2	
Woodworking	(Eng'g 1)	2:00	M.W.F. 1st half	1½	
Elements of metal working	(Eng'g 9)	2:00	M.W.F. 2nd half	1½	18

First Year—Second Semester

Rhetoric and comp	(Eng. 2)	8:00	Tu.W.F. or M.W.Th.	3	
Analytic geometry	(Math. 5)	9:00	M.W.F.	3	
Spherical trigonometry	(Math. 6)	9:00	Tu.Th.	2	
Land surveying	(Eng'g 100)	10:00	M.Th.F.	3	
Inorganic chemistry	(Chem. 2)	11:00	M.W.F., 2:00 M.	4	
Military science 2		12:00	M.Tu.W.Th.	1	
Mechanical drawing	(Eng'g 22)	2:00	Tu.Th.	2	18

Second Year—First Semester

Differential calculus	(Math. 7)	8:00	M.W.F. and study period Tu.Th.	3	
General physics	(Physics 6, 7)	9:00	Tu.W.Th., 2:00 M.	5	
Descriptive geometry	(Eng'g 26)	10:00	Tu.Th.F.	3	
Advanced surveying	(Eng'g 102)	11:00	Tu.Th.	2	
Military science 3		12:00	M.Tu.W.Th.	1	
Qualitative analysis	(Chem. 4)	2:00	Tu.Th.	2	
Mechanical drawing	(Eng'g 25)	2:00	W.F.	2	18

Second Year—Second Semester

Integral calculus	(Math. 8)	8:00	M.W.F., and study period Tu.Th.	3	
General physics	(Physics 8, 9)	9:00	Tu.W.Th.F. 2:00 M.	5	
Statics	(Eng'g 70)	10:00	Tu.Th.F.	3	
Mine surveying	(Eng'g 80)	11:00	M.W.F. and 8:00 S.	4	
Military science 4		12:00	M.Tu.W.Th.	1	
Quantitative analysis	(Chem. 6)		Hours to be arranged	2	18

Summer Practice

Summer field practice	(Eng'g 110)	Four weeks, daily 8:00-12:00; 1:00-5:00	4

Third Year—First Semester

Mech. of materials	(Eng'g 71)	8:00	Tu.W.Th.F.	4	
Thermodynamics	(Eng'g 121)	9:00	M.W.F.	3	
Coal mining	(Eng'g 81)	8:00	M. 10:00 Tu.Th.	3	
Elec. & mag.	(Physics 10)	11:00	Tu.Th., 2:00 W.	3	
General geology	(Geology 2)	11:00	M.W.F.	3	
Mechanical lab.	(Eng'g 130)	8:00	S.	2	
Engineering society	(Eng'g 162)	7:30	p.m. F.		18

Third Year—Second Semester

Kinetics	(Eng'g 72)	8:00	T.Th.F.	3	
Hydraulics	(Eng'g 73)	8:00	M.W.	2	
Coal mining	(Eng'g 82)	9:00	M.Tu.Th.F.	4	
Economic geology	(Geol. 4)	11:00	M.W.F.	3	
Mine design and drawing	(Eng'g 86)	8:00	Tu. and 2:00 Tu.Th.	3	
Mechanical lab.	(Eng'g 131)	8:00	S.	2	
Engineering Society	(Eng'g 162)	7:30	p.m. F.	1	18

Fourth Year—First Semester

Power plant design	(Eng'g 123)	8:00	M.W.F.	3	
Elements of electrical eng.	(Eng'g 53)	9:00	M.W.F.	3	
Mine des'n & dwg.	(Eng'g 87)	9:00	Tu., 2:00 Tu.Th.	3	
Mine explosions and gases	(Eng'g 83)	11:00	M.Th.F.	3	
Structural eng'g.	(Eng'g 144)	11:00	Tu.W.	2	
Engineering lab.	(Eng'g 132)	8:00	Th.	2	
Electrical lab.	(Eng'g 62)	2:00	F.	2	
Engineering society	(Eng'g 163)	7:30	p.m. F.		18

Fourth Year—Second Semester

Metallurgy	(Eng'g 85)	8:00	W.F.	2	
Elect. engineering	(Eng'g 54)	10:00	M.F.	2	
Concrete const.	(Eng'g 147)	9:00	Tu.Th., 2:00 W.F.	4	
Mine management or M'f'g and prop. of coke	(Eng'g 84)	10:00	Tu.Th.	2	
	(Eng'g 91)	10:00	M.F.	2	
Mineralogy	(Geology)		Hours to be arranged	3	
Metallurgical lab.	(Eng'g 96)	2:00		1	
Thesis	(Eng'g 99)		Hours to be arranged	3	
Engineering society	(Eng'g 163)	7:30	p.m. F.	1	18

OPTIONAL COURSE IN SANITARY ENGINEERING

Students in civil engineering who desire to specialize in sanitary engineering are permitted to make the following substitutions:

Chemistry 6, Quantitative analysis (4 hrs.) for Mechanism 29 (2 hrs.) and Mechanism Drawing 30 (2 hrs.) in the second semester, second year.

Bacteriology 1, General Bacteriology, (3 hrs.) for Economic Geology 4 (3 hrs.) second semester, third year.

Chemistry 8, Organic Quantitative Analysis (5 hrs.) and thesis (4 hours) for Railroad Economy 107 (3 hrs.), Advanced Structures 143 (3 hrs.), and Thesis (3 hrs.).

An additional course in Bacteriology (2 hrs.) is arranged for the first semester, fourth year, to take the place of Tunneling 88 (2 hrs.)

CURRICULA FOR GRADUATE STUDENTS IN ENGINEERING

These lead to the professional degrees of Master of Science in Civil Engineering, Master of Science in Mechanical Engineering, Master of Science in Electrical Engineering, and Master of Science in Engineering of Mines, respectively. They consist of advanced engineering courses aggregating twenty-four semester hours and a thesis, and require one year of resident study and work at the University.

A candidate for a professional degree is required to have completed the prescribed four-year curriculum of undergraduate study in that department of this college in which he proposes to take a degree, or to have completed such a curriculum or its equivalent at some other institution of recognized standing, conferring the same or an equivalent baccalaureate degree. In the latter case, the diploma and other certificates of proficiency should be presented.

There is no fixed curriculum of subjects for any of these degrees, but the curriculum of study or investigation is arranged to suit the needs of each candidate, subject to the University regulations governing candidates for the masters degree as stated on page 37. Each candidate for a degree must select his major subject in the department in which his degree is to be taken and submit a thesis showing marked attainment in some phase of this subject.

SPECIAL ENGINEERING CURRICULA

1. Elective Groups for Students in other Colleges. Candidates for degrees other than engineering degrees, and special students in any department of the University, are permitted to elect subjects in the College of Engineering, provided, in each case, they have had the subjects specified as prerequisites. Students who wish to take a general classical or scientific course of study before taking the engineering curriculum are advised to carry their mathematics as

far as called for by the engineering curriculum, and to take some of their elective work in the College of Engineering. The engineering instructors will advise them what is best to elect.

Credits are given in the College of Arts and Sciences for the following engineering courses:

Subject	Credit hours
Mechanical drawing 20-25, 28 or 30	8
Descriptive geometry 26	3
Mechanism 27 or 29	2
Theory of alternating currents 55	2
Alternating current machinery 56	3
Electrical laboratory 60, 61	4
Statics 70	3
Mechanics of materials 71	4
Dynamics 72	3
Hydraulics 73	2
Land surveying 100 and 101	3
Thermodynamics 121	3
Heating and ventilating 127	3

In addition to the above the student may elect with the consent of his class officer, when his major subject is physics or education.

Engineering 1-18 (Mechanic arts)	10
Mechanical drawing 20-25, 28 or 30	3

2. **Combined B.S. and Engineering Curriculum.** The following course of study is suggested for students whose major subject is physics and who expect to take an engineering degree after receiving the degree of Bachelor of Science.

Language group:—

Rhetoric and composition	10
French and German	30

Philosophy group:—

History, economics, education	20

Science group:—

Algebra, trigonometry	7
Analytical geometry, calculus	9
Physics 6, 7, 10	13
Mechanics 70, 71, 72, 73	12
Thermodynamics 121	3
Mechanism 29	2
Military science	4
History, economics, education	20

Electives from group above:—

Mechanical drawing 20-25, 28 or 30	6
Descriptive geometry 26	3
Land surveying 100	3
Shop work and other electives to suit degree to be taken	6
Total	128

Students who wish to secure the degree in civil engineering should include Geology 2 and Geology 4 in their list of electives. Those expecting to take mining engineering should elect Geology 2, Geology 4, and Mineralogy.

By following the above curriculum students may receive both the B.S. and the engineering degree in from five and a half to six years.

3. **Partial Curricula.** Deserving young men who have not the time or are otherwise unable to take a full curriculum, will be allowed to take special or partial curricula, consisting of such studies as they are prepared to take, provided that such curricula shall have been approved by their class officers. For further information see statement of requirements for admission as special students.

4. **Manual Training Courses.** The first group consists of courses 1, and 7 in mechanical engineering. The second group consists of mechanical drawing, courses 20, 21, 22; and shop practice in wood and metal working, courses 1, 3, 5, 7, 9, 10, 12 and 14. These courses aim to present the simple elements of some of the constructive arts which admit of being developed into a logical series of exercises. Their merit is chiefly educational, rather than as possessing any intrinsic value in relation to the several branches of handicraft work from which they are taken. The primary object is the training of the eye to see the form of objects, and of the hand to produce such forms in the materials most commonly used in constructive work. There is sufficient instruction in handicraft work and practice to form a proper foundation for the more advanced work with machine tools in mechanical construction and these courses are therefore required of all students taking the full course in mechanical engineering.

5. **Special Courses for Mechanics, etc.** Students who wish to become more proficient in the use of tools or who are preparing themselves for positions as foreman in industrial establishments, may take additional work in the shop in which they wish to

specialize. Instruction will be given in the maintenance and repair of machinery, and opportunity will be afforded for the construction of new machines and apparatus for the University, as well as for the working up in the shops of original designs which have been approved by the heads of the department. All students in mechanical engineering are recommended to take advantage of this provision and devote as much time as possible to shops and drawing-room practice.

COURSES OF INSTRUCTION

In the following announcements, the name of the course is followed by its credit value in semester hours. A credit of one semester hour is given for a lecture or recitation course meeting one hour per week for one semester and requiring two hours of preparation for each lecture or recitation.

Credit for practical work in the shops, drawing rooms, laboratories, and field, is given on the basis of the actual time required, including the preparation of reports and the writing of notes, three hours actual work counting as one recitation hour.

DRAWING, MACHINE DESIGN AND CONSTRUCTION

Students will be assigned to sections at the time of entering the classes as follows: Sections 1 and 2, for civil and mining engineering students; sections 3 and 4 for electrical and mechanical engineering students.

1. Woodworking. (1½ Hrs.) For freshmen. Required of all candidates for engineering degrees. Includes instruction in carpentry; exercises with the fundamental edge tools in soft and hard woods and in making typical framed work; wood turning; exercises comprising the fundamental geometrical forms in soft and hard woods; fitting of forms of reversed curves; face plate work; boring, finishing, and polishing.

First half of first semester; sections 2 and 3, M., W., F., 2:00; sections 1 and 4, Tu., Th., 2:00, and S., 8:00.

2. Woodworking. (1 Hr.) Optional for candidates for degrees in the College of Agriculture. Includes instruction in carpentry; exercises with fundamental edge tools in soft and hard woods, with especial attention to the making of typical framed structures.

Second semester; Tu., Th., 8:00-10:00; Mr. SEAMAN, 21 M. H.

3. Woodworking. Advanced work for special students, who are allowed to specialize along the lines of their choice. The amount of credit to be given depends upon the time spent in the shop and the progress of the student. Prerequisite: Woodworking 1 or 2.

Second semester; hours to be arranged; Mr. SEAMAN, 21 M. H.

4. Pattern Making. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. An application of the instruction of Woodworking 1 to the production of patterns for castings for machine construction; types of patterns and usual allowances for draft, shrinkage and finish; exercises in making patterns of machine elements and other work to be later executed in machine shop. Prerequisite: Woodworking 1.

Second semester; section 3, M., F., 2:00; section 4, Tu., 2:00 and S., 8:00. Mr. SEAMAN, 21 M. H.

5. Foundry. (1½ Hr.) Required of all candidates for degrees in electrical and mechanical engineering. Selection, preparation and use of molding, facing and parting sands; use of typical molder's tools and appliances; cupola practice; making of castings from exercise patterns and from those for the machine shop; solid and parted patterns, cored work, use of sweeps, etc.; use of brass furnace and brass casting.

Last half of first semester; section 3, M., W., F., 2:00; section 4, Tu., Th., 2:00 and S., 8:00. Mr. SEAMAN, Mr. WEST and Assistant, 8 M. H.

6. Foundry. Advanced work for special students, continuation of Foundry 5.

Hours to be arranged; Mr. SEAMAN, Mr. WEST and Assistant, 8 M. H.

7. Forging. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering and agriculture. Use and care of forge, fire and tools; exercises in drawing out and sizing, forming, twisting, punching, upsetting, welding and fitting iron; ornamental iron work; steel forging, tempering and annealing springs; making of typical lathe, shaper and planer tools for machine shop use; case hardening, use of power hammer; determination of quality of iron and steel.

First semester; section 3, W., F., 2:00, last half of semester; section 4, M., 2:00 and S., 8:00, first half of semester; Mr. WEST, 7 M. H.

Second semester; W., 2:00; S., 8:00; for agricultural students.

8. Forging. Advanced work for special students, continuation of Forging 7.

Hours to be arranged; Mr. WEST, 7 M. H.

9. Elements of Metal Work. (1½ Hrs.) Required of all candidates for degrees in civil engineering and engineering of mines. Elements of forging; use and care of forge, fire and tools; exercises in drawing out and sizing, forming, twisting, punching, upsetting, welding, and fitting iron; steel forging and hardening; use of power hammer; bench work; chipping and filing; drilling, riveting, use of pneumatic chisel and riveter.

Last half of first semester; section 1, Tu., Th., 2:00 and S., 8:00; section 2, M., W., F., 2:00; Mr. CATHER and Mr. WEST. 11 and 7 M. H.

10. Pipe Fitting. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering. Use of hand dies and pipe threading machines; drilling and tapping; making up joints and erection of lines of piping; riveting, caulking and tube expanding.

Second semester; section 3, M., F., 2:00, last half of semester; section 4, Tu., Th., 2:00, first half of semester; Mr. WEST, 7 M. H.

12. Bench and Vise Work. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering. Chipping, filing, scraping and polishing; squaring, formation of straight edges and surface plates; laying out work; sawing, drilling, tapping. Lectures and shop work.

First semester; section 3, W., F., 2:00, first half of semester; section 4, M., 2:00; S., 8:00; last half of semester; Mr. CATHER, 11 M. H.

13. Machine Work; Sheet Metal Work. (1 Hr.) Required of all candidates for degrees in electrical and mechanical engineering. First four weeks, continuation of Bench and Vise Work 12, leading to elementary exercises on engine lathe. Last five weeks, sheet metal work; laying out, cutting and forming of sheet metal; use of coppers, soldering, tinning and brazing. Prerequisite: Bench and Vise Work 12.

Second semester; section 3, M., F., 2:00, first half of semester; section 4, Tu., Th., 2:00, last half of semester; Mr. CATHER and Mr. WEST, 7 M. H.

14. Machine Tool Work. (4 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Adjustment and operation of machine tools, measuring devices, angles of cutting tools, feeds and speeds; exercise involving fundamental operations with the lathe, planer, drill press, grinder and milling machine. Lectures and shop work. Prerequisites: Forging 7, and Chipping and Filing 12.

This work is regularly given in the supplementary term, lasting about four and one-half weeks immediately after the close of the

second collegiate year. Students may take the equivalent of this in actual experience by procuring summer employment in machine shops. Credit will be given in each case on the basis of the amount and character of the experience obtained.

Supplementary term; 8:00 to 12:00, 1:00 to 5:00; S., 8:00 to 12:00; Mr. CATHER, 11 M. H.

15. Machine Construction. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Continuation of Machine Tool Work 14, with special attention to assembling, fitting and erecting of machines. Lectures and shop work.

First semester; section 3, Tu., F., 2:00; section 4, M., 2:00 and S., 8:00; Mr. CATHER, 11 M. H.

16. Shop Methods. (2 Hrs.) Required of all candidates for degrees in mechanical engineering. Continuation of Machine Construction 15. Study of machine and other shop methods for wholesale production, use of jigs and templates and of special machines and processes; work shop appliances in general; costs of machine work; arrangement, installation and upkeep of machinery; elements of practical mill-wrighting. Shop and laboratory work; lectures, inspection trips, reading, etc.

Second semester; shop work, W., 2:00 and S., 8:00; or lectures, M., F., 11:00; Professor CHURCH and Mr. CATHER, 26 and 11 M. H.

17. Machine Construction. Advanced work for special students, continuation of Machine Construction 15 and Shop Methods 16.

Hours to be arranged; Mr. CATHER, 11 M. H.

18. Electrical Construction. For special students and others wishing practical experience along electrical lines. Mechanical repairs to dynamos and motors, setting and adjusting of brushes; construction of switches, switchboards and rheostats, winding coils; wiring for electric light, power and telephone service.

Hours to be arranged; Professor DICKINSON and Mr. WEST, 4 M. H.

20. Mechanical Drawing. (2 Hrs.) For freshmen. Required of all candidates for engineering degrees. Care and use of drawing instruments, line exercises, geometric constructions, plain lettering including proficiency in at least one style, orthographic projection.

First semester; section 1, M., F., 2:00; section 2, Th., 2:00; S., 8:00; section 3, Tu., 2:00 and S., 8:00; section 4, W., F., 2:00; Mr. GROW, 25 M. H.

21. Mechanical Drawing. (2 Hrs.) Primarily for students in home economics. Use of drawing instruments, practice in reading

of drawings, designing and drawing of furniture and of room and house plans.

First semester; Tu., Th., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

22. Mechanical Drawing. (2 Hrs.) For freshmen. Required of all candidates for engineering degrees. Continuation of mechanical drawing 20; isometric projection, tracing and blue printing, working drawings, from blue prints, sketches and models.

Second semester; sections 1, 2, and 3, Tu., Th., 2:00; section 4, M., F., 2:00; Mr. GROW, 25 M. H.

23. Mechanical Drawing. (2 Hrs.) Required of all candidates for degrees in agriculture. Use of drawing instruments, practice in reading of drawings, building plans, designing and drawing of framed structures and their details.

Second semester; M., 2:00, and S., 8:00; Professor CHURCH and Mr. GROW, 25 M. H.

24. Mechanical Drawing. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Continuation of Mechanical drawing 22. Working drawings, engineering sketching, assembly and arrangement drawing, empirical design.

First semester; section 3, M., 2:00, and S., 8:00; section 4, W., F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

25. Mechanical Drawing. (2 Hrs.) Required of all candidates for degrees in civil engineering and engineering of mines. Continuation of Mechanical Drawing 22. Drawing room conventions for representation of materials, details in topography, wooden framing, structural steel shapes and framing, etc., lettering of titles, map tracing.

First semester; W., F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

26. Descriptive Geometry. (3 Hrs.) Required of all candidates for engineering degrees. Orthographic projections in the four quadrants; problems of the point; line and plane; tangencies; development of single curved surfaces. Prerequisite: Mechanical Drawing 20.

First semester; Tu., Th., F., 10:00; Professor MORRIS and Mr. GROW, 24 and 26 M. H.

27. Mechanism and Machinery. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Mechanism Drawing 28. Analysis and classification of mechanisms; diagrams of relative velocities of machine parts;

principles of transmission and change of motions by linkages, rolling contract, toothed gearing, couplings, belts, cams, parallel and straight line motions; analysis and classification of machines with special attention to workshop appliances, machine tools and machinery of transmission. Lectures and recitations. Prerequisite: Mechanical Drawing 22.

Second semester; W., F., 11:00; or W., F., 8:00; Mr. GROW, 26 M. H.

28. Mechanism Drawing. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Mechanism and Machinery 27. Drawing and diagrams of mechanical movements, velocity diagrams, graphical solution of problems, design and drawing of gear teeth. Prerequisite: Mechanical Drawing 22.

Second semester; W., 2:00, and S., 8:00; Professor CHURCH and Mr. GROW, 25 M. H.

29. Mechanism and Machinery. (2 Hrs.) Required of all candidates for degrees in civil engineering. To accompany Mechanism Drawing 30. Brief course in analysis and classification of mechanisms; motions, velocities, diagrams of motion and velocity, cams, involute and cycloidal gearing, belting, intermittent gearing, clutches, etc. This short theoretical course is followed by a study and analysis of mechanisms and machines used in the various branches of civil engineering; hoists, derricks, lifts, dredges, shovels and other excavating machinery, crushers, conveyors, etc.

Second semester; Tu., Th., 11:00; Mr. GROW, 26 M. H.

30. Mechanism Drawing. (2 Hrs.) Required of all candidates for degrees in civil engineering. To accompany Mechanism and Machinery 29. Drawings and diagrams of mechanical movements, velocity diagrams, gear teeth; analysis by sketches and written descriptions of various pieces of contractor's machinery in the shops and laboratories, and in Morgantown or vicinity. Prerequisite: Mechanical Drawing 22.

Second semester; Tu., Th., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

31. Valve and Valve Gears. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Machine Drawing 32 or 33. Brief study of simple steam engine; use and comparison of valve diagrams, study of valves and gears in common use; analysis and design. Lectures and recitations. Prerequisites: Mechanism and Machinery 27 and 28.

First semester; M., W., 11:00; Professor CHURCH, 26 M. H.

32. Machine Drawing. (2 Hrs.) Required of all candidates for degrees in mechanical engineering. To accompany Valves and Valve

Gears 31. Valve diagram problems; designing and drawing of valves and gears; steam engine drawing.

First semester; Tu., Th.; Professor CHURCH and Mr. GROW, 25 M. H.

33. Machine Drawing. (2 Hrs.) Required of all candidates for degrees in electrical engineering. Use of valve diagram and solution of problems; assembly drawing, steam engines, dynamo electric machinery.

First semester; M., Th., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

35. Machine Design. (3 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Machine Drawing 36. Elements of machine design, conventional and rational proportioning of bearings, fastenings, rotating parts, connecting links and machine supports; mechanics of machinery; influence of material and treatment on design. Prerequisite: Mechanics 71 and Mechanism and Machinery 28.

Second semester; M. F., 10:00, and W., 11:00; Professor CHURCH, 26 M. H.

36. Machine Drawing. (2 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. To accompany Machine Design 35. Designing and drawing of machine elements and finally of complete machine.

Second semester; M., F., 2:00; Professor CHURCH and Mr. GROW, 25 M. H.

37. Advanced Machine Design. (3 Hrs.) Optional for fourth year senior students in mechanical engineering. Continuation of Machine Design 35. To accompany Designing and Drawing 38. Graphical solutions of problems in machine forces; theory of elasticity; dynamics of machines, governors, reciprocating parts, fly-wheels, running balance, whirling of shafts, etc. Lectures and recitations.

First semester; M., F., 11:00, and Tu., 9:00; Professor CHURCH, 26 M. H.

38. Designing and Drawing. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Advanced Machine Design 37. Designing practice of more advanced nature than that in Machine Design 35, and involving principles studied in the class room work of Course 37.

First semester; Tu., W., Th., 2:00; Professor CHURCH, 25 M. H.

39. Steam Engine Design. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Designing and

Drawing 40. Study of modern steam engine from the point of view of the designer and constructor; detailed study of form of parts and of the forces and stresses involved; comparison of rational and empirical formulæ. Dynamics of machines; governors, reciprocating parts and flywheels. Lectures and recitations. Prerequisite: Machine Design 35.

First semester; M., T., F., 10:00; Professor CHURCH, 26 M. H.

40. Designing and Drawing. (3 Hrs.) Optional for fourth year students in mechanical engineering. To accompany Steam Engine Design 39. Use of empirical and rational formulæ; complete design and drawing of a steam engine of simple type so far as time will allow.

First semester; Tu., W., Th., 2:00; Professor CHURCH, 25 M. H.

41. Designing and Drawing. (3 Hrs.) Required of all candidates for degrees in electrical and mechanical engineering. Continuation in the drawing room of Power Plant Design 123. Making of the working drawings showing the location of boilers, engines, auxiliaries, piping, coal and ash handling machinery, etc.

Second semester; M., W., 2:00, and S., 8:00; Professor CHURCH and Mr. GROW, 25 M. H.

42. Machinery and Mill Work. (3 Hrs.) Optional for fourth year students in mechanical engineering. Study of sites of building; foundations, walls and roof; designing and construction of mill and manufacturing buildings and managements of equipment; chimneys, lighting, heating, ventilating, cranes and other appliances for handling material; power generation; transmission and utilization in mills and factories. Prerequisites: Shop Methods 16 and Machine Design 35. To be given in alternate years with Steam Turbines 125.

Second semester; M., W., F., 9:00; Professor CHURCH, 26 M. H.

45. Gas Engine Design. (3 Hrs.) Optional for fourth year students in mechanical engineering To accompany Gas Engineering 126. Calculations and drawings for gas engine, complete so far as time will allow. Prerequisite: Steam Engine Design 39.

Second semester; hours to be arranged; Professor CHURCH, 26 M. H.

46. Industrial Management. (1 Hr.) Required of all students in electrical and mechanical engineering. Organization of industrial establishments, management, systems of payment, cost keeping, distribution of overhead expenses, determination of cost of production, etc.

First semester; W., 9:00; Professor CHURCH, 26 M. H.

49. Thesis. (3 Hrs.) Optional for fourth year students in

mechanical engineering. The working out of some special problems in design or construction or both. See general thesis requirements, page 131.

Hours to be arranged; Professor CHURCH, 26 M. H.

ELECTRICAL ENGINEERING

51. Applied Electricity. (3 Hrs.) Primarily for the third year students in civil engineering. Required for the degree of B.S.C.E. Lectures and recitations accompanying laboratory practice. A brief course covering the principles and the most important industrial applications of electricity. Prerequisite: Physics 7.

First semester; Tu., Th., 11:00; Professor DICKINSON, 14 M. H.; laboratory, M. or Tu., 2:00; Professor DICKINSON and Assistant Professor FORMAN, 4 M. H.

52. Direct Current Machinery. (4 Hrs.) Primarily for third year students. Required for the degree of B.S.C.E. The mechanical applications of the theories of the electric and magnetic circuits. A study of the theory, construction, and operation of direct current generators and motors and allied apparatus. Prerequisite: Physics 10.

Second semester; Tu., Th., 11:00; Professor DICKINSON, 14 M. H.; laboratory, T., 2:00; Professor DICKINSON and Assistant Professor FORMAN, 4 M. H.

53. Elements of Electrical Engineering. (2 Hrs.) A course for fourth year students in mechanical and mining engineering. Required for the B.S.M.E. and B.S.E.M. degrees. A general study of the generation, transmission, and the utilization of electrical energy. Prerequisites: Physics 10 and Calculus.

First semester; M., F., 9:00; Professor DICKINSON, 14 M. H.

54. Elements of Electrical Engineering. (2 Hrs.) Continuation of Course 53. The industrial applications of electricity, with a consideration of the economic employment of systems of distribution and types of machines.

Second semester; M., F., 10:00; Professor DICKINSON, 14 M. H.

55. Theory of Alternating Currents. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. A mathematical and graphical treatment of periodic currents and accompanying phenomena, with special reference to the engineering applications of the principles. Accompanied by Electrical Engineering Laboratory 60. Prerequisites: Physics 10 and Engineering 51.

First semester; M., F., 10:00, and W., 9:00; Assistant Professor FORMAN, 14 M. H.

56. Alternating Current Machinery. (3 Hrs.) Continuation of Engineering 55. Principles of design, construction and operation of single and polyphase machinery and auxiliary apparatus. Accompanied by Electrical Engineering Laboratory 61.

Second semester; M., W., F., 9:00; Assistant Professor FORMAN, 14 M. H.

57. Electric Traction and Transmission. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. A study of the equipment of electric railway installations, with special treatment of transmission systems for traction and general distribution. Prerequisite: Engineering 51.

First semester; M., W., F., 11:00; Professor DICKINSON. 14 M. H.

58. Electrical Lighting and Signaling. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. The first part of the course is devoted to a study of the principles of illumination and interior wiring. Later, the fundamental principles of electric signaling are treated, with their applications to modern telegraphic and telephonic systems. Prerequisite: Engineering 55.

Second semester; M., W., F., 11:00; Professor DICKINSON. 14 M. H.

59. Electrical Design and Drawing. (3 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. Designing and drawing dynamos, motors, transformers, switchboards etc. This course requires nine hours a week in the designing room. Prerequisite: Engineering 51 and 35.

First semester; Tu., W., Th., 2:00; Professor DICKINSON. 25 M. H.

60, 61. Electrical Engineering Laboratory. (2 Hrs.) Primarily for fourth year students. Required for the degree of B.S.E.E. Experimental study of the characteristics of alternating current machinery, investigations of transmission line constants and losses, tests of series lighting systems, location of line faults, traction and power plant tests, etc. Prerequisite: Engineering 51.

First semester; Tu., 8:00; Professor DICKINSON and Assistant Professor FORMAN, 4 M. H.

Second semester; Tu., 8:00; Professor DICKINSON and Assistant Professor FORMAN, 4 M. H.

62. Electrical Engineering Laboratory. (2 Hrs.) Primarily for fourth year students in mechanical and mining engineering. Required for the degrees of B.S.M.E. and B.S.E.M. Practical measurements in electrical machinery; study of switchboards; calibration of instruments; determination of efficiencies and character-

istics of dynamos, motors, transformers and other electrical apparatus. To accompany Engineering 53. Prerequisite: Physics 10.

First semester; F., 2:00; Professor DICKINSON and assistants, 4 M. H.

63. Electrical Engineering Laboratory. (2 Hrs.) Continuation of course 62. To accompany Engineering 54.

Second semester; Tu., 2:00; Professor DICKINSON and assistants.

64. Electrical Research. For advanced and graduate students. Laboratory investigations in special lines of electrical studies.

Hours and credits to be arranged; Professor DICKINSON, 14 M. H.

65. Electrical Engineering. Seminar work for advanced and graduate students. Special topics will be selected for study and discussion.

Hours and credits to be arranged; Professor DICKINSON, 14 M. H.

69. Thesis. (3 Hrs.) Required of candidates for the degree of B.S.E.E. Special investigation or original research on some topic relating to electrical engineering.

First and second semesters; hours to be arranged; Professor DICKINSON and Assistant Professor FORMAN, 14 M. H.

MECHANICS AND APPLIED MATHEMATICS

70. Statics. (3 Hrs.) Required of all second year engineering students. A study of the composition and resolution of forces, polygon of forces, resultants of parallel forces by analytical and graphical methods, moments, couples, equilibrium of concurrent and non-concurrent forces, center of gravity and moment of inertia by analytical and graphical methods, stresses in frames and jointed structures. Prerequisite: Integral calculus.

Second semester; Tu., Th., F., 10:00; Professor EMORY, 20 M. H.

71. Mechanics of Materials. (4 Hrs.) Required of all third year engineering students. Continuation of course 70. The strength of materials, resistance and elasticity of pipes, cylinders and riveted joints, cantilever and simple beams; tension and compression, resistance, shear, torsion; strength of timbers, iron, steel, stone, concrete; elastic limits, factor of safety; design of simple structure. Prerequisite Statics 70.

First semester; Tu., W., Th., F., 8:00; Professor EMORY, 20 M. H.

72. Kinetics. (3 Hrs.) Required of all third year engineering students. Continuation of Statics 70. Laws of motion in resisting medium, central forces, centrifugal force, pendulum and governor, impulse, work, energy, power modulus of machines, revolving masses,

work of variable forces, duty of engines, impressed forces, motions of rigid bodies, flywheels, conservation of energy. Prerequisite: Statics 70.

Second semester; Tu., Th., F., 8:00; Professor EMORY, 20 M. H.

76. Mechanics. (5 Hrs.) Includes Statics 70, and first half of Mechanics of Materials 71.

First semester; 11:00; Professor EMORY, 20 M. H.

77. Mechanics. (5 Hrs.) Continuation of course 76. Includes last half of Mechanics of Materials 71 and Kinetics 72.

Second semester; 11:00; Professor EMORY, 20 M. H.

73. Hydraulics. (2 Hrs.) Required of all engineering students. Theoretical pressure and energy of water; flow of water through orifices and tubes and over weirs; flow in conduit, pipes, canals, and rivers; current meters, water motors, turbines. Prerequisite. Kinetics 72.

Second semester; M., W., 8:00; Professor DAVIS, 30 M. H.

75. Least Squares and Adjustment of Observations. (1 Hr.) Elective for fourth year engineering students. Especially designed for civil and electrical engineering students. Errors of observation; principles of probability, weights of observations, principle of least squares, probable errors of observation, errors in the mean, corrections of observations, normal equations, empirical formulæ. Prerequisite: Calculus.

First semester; hours to be arranged; Professor EMORY, 20 M. H.

MINING ENGINEERING

80. Mine Surveying. (4 Hrs.) Primarily for sophomores. Required of all candidates for degrees in mining engineering. With this subject is included topographic surveying, location of outcrop, shaft plumbing, and the various systems of mine surveying and note keeping. The accuracy of the field work is tested by plotting the notes.

Second semester; M., W., F., 11:00; S., 8:00; Professor ZERN, 15 M. H.

81. Coal Mining. (3 Hrs.) Primarily for juniors. Required of all candidates for degrees in mining engineering. A study of the occurrence and composition of coals; prospecting, breaking ground, transmission of power to underground workings, coal cutting, explosives, blasting, shaft sinking, timbering and the various methods of working coal seams at home and abroad.

First semester; M., 8:00; Tu., Th., 10:00; Professor ZERN, 15 M. H.

82. Coal Mining. (4 Hrs.) Primarily for juniors. Required of all candidates for degrees in mining engineering. Treats of the various kinds of haulages in mines, the care of live stock, hoisting, pumping, ventilation, lighting, works at surface, preparation of coal for market, briquetting and coal washing.

Second semester; M., T., W., Th., 9:00; Professor ZERN, 15 M. H.

83. Mine Explosions and Gases. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. A study of mine air and mine gases; their generation, characteristics and behavior; the underlying causes of mine explosions; coal dust theory; measures for the prevention of explosions; rescue work after explosions, etc.

First semester; M., Th., F., 11:00; Professor ZERN, 15 M. H.

84. Mine Management. (2 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. With this subject is included a study of mine economics, organization and care of labor, mine accounting and cost keeping, valuation of properties, welfare movements, etc.

Second semester; Tu., Th., 10:00; Professor ZERN, 15 M. H.

85. Metallurgy. (2 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. A course designed to give the student a working knowledge of the basic principles involved in the metallurgy of iron, steel, gold, silver, copper, zinc, lead and fuels.

Second semester; W., F., 8:00; Professor ZERN, 15 M. H.

86. Mine Design and Drawing. (3 Hrs.) Primarily for juniors. Required of all candidates for degrees in mining engineering. The application of the principles of construction to mine appurtenances such as powder magazines, supply houses, lamp houses, motor pits, tipples, stables, etc.

Second semester; Tu., 8:00; Tu., Th., 2:00; Professor ZERN, 15 M. H.

87. Mine Design and Drawing. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. Most of the work in this course is given to the projection of mine workings, the objective being successful ventilation and safety and economy in extraction, design of shaft bottoms and inside stables, and the solution of mine problems such as confront the engineer in practical work.

First semester; Tu., 9:00; Tu., Th., 2:00; Professor ZERN, 15 M. H.

88. Shafting and Tunneling. (2 Hrs.) Primarily for seniors. Required of all candidates for degrees in civil engineering. Treats

of the various methods used in shafting and tunneling, such as the freezing process, forepoling, pneumatic and open caisson, shields, etc., and their especial adaptibility to the difficulties encountered. Rock drills, drilling and blasting practice. Practice in foreign countries, such as Germany, England, Belgium and France.

First semester; M., F., 10:00; Professor ZERN, 15 M. H.

90. Summer Field Practice. (4 Hrs.) Primarily for juniors. Required of all candidates for the degree in mining engineering. This period is spent in applying the principles of surveying previously acquired. Through the courtesy of the Elkins Coal and Coke Company their mines, located but a few miles away, have been made available for the carrying on of much of this work.

Four weeks of six days per week from the middle of June to the middle of July, between the sophomore and junior years. Professor ZERN, 15 M. H.

91. The Manufacture and Properties of Coke. (2 Hrs.) Primarily for seniors. May be elected in place of Electrical Engineering 54. This course treats of the various classes of coke ovens, as the beehive, rectangular, flue or bi-product. Methods of manufacture, physical properties, effects of impurities as ash, sulphur, and phosphorus. Design of ovens, etc.

Second semester; M., F., 10:00; Professor ZERN, 15 M. H.

95. Mining Laboratory. (2 Hrs.) Required of all candidates for the degree of B.S.E.M. Includes tests of steam engines, boilers, air compressors, mine fans, and mine car wheels; mine air analysis, methane, carbon monoxide, and, carbon dioxide in ventilating currents; explosibility of methane and coal dust in mine air; experiments in coal washing and coal preparation. Prerequisite: Mechanical laboratory 131.

First semester; Th., 8:00; Professors ZERN and GRUMBEIN, 10 M. H.

96. Metallurgical Laboratory. (1 Hr.) Required of all candidates for the degree of B.S.E.M. Includes methods of coal sampling, coal crushing and pulverizing and screening tests; tests on coal to determine their suitability for coking; determining the percentage of coke which a coal should yield; the percentages of volatile matter, by-products and permanent gases in coals; the proximate analyses of coals; the analyses of mine gases; the use of various types of pyrometers; heat determinations, cupellation and amalgamation tests, etc., etc.

Second semester; M., 2:00; Professor ZERN.

99. Thesis. (3 Hrs.) Primarily for seniors. Required of all candidates for degrees in mining engineering. The student is

encouraged to choose such subjects as will involve careful observation, collateral reading and the collection of data.

Second semester; hours to be arranged; Professor ZERN, 15 M. H.

RAILWAY AND HIGHWAY ENGINEERING AND SURVEYING

100. Land Surveying. (3 Hrs.) Required of all candidates for degrees in civil and mining engineering. Theory and practice of land surveying; magnetic variations; calculating the content; retracing old lines; division of lands; establishment of meridians; care and use of instruments; mapping and surveying. Lectures, recitations, field practice.

Second semester; M., Th., F., 10:00; Professor MORRIS, 24 M. H.

101. Surveying. (1 Hr.) Primarily for first year students. Required for degrees in mechanical and electrical engineering. Theory and use of the compass, transit and level, the laying out and measurement of areas and leveling. Prerequisite: Plane trigonometry.

Second semester; Tu., 10:00; Professor MORRIS, 24 M. H.

102. Advanced Surveying. (2 Hrs.) Primarily for second year students. Required of candidates for degrees in civil and mining engineering. Continuation of Surveying 100. Adjustment of instruments, stadia surveys, leveling, etc.

First semester; recitation, M., 10:00; practice, S., 8:00; Professor MORRIS, 24 M. H.

103. Topographical Surveying. (2 Hrs.) Primarily for second year students. Required of candidates for degrees in civil engineering. Theory and practice of topography, hydrographic and barometric surveying. Lectures, recitations, field practice and map drawing. Prerequisite: Land surveying 100.

Second semester; lecture, M., 9:00; practice hours to be arranged; Professor MORRIS, 24 M. H.

104. Railway Location. (3 Hrs.) Primarily for third year students. Required of all candidates for degrees in civil engineering. Theory and practice of railroad surveying. Lectures, recitations, field work, and drawing. Searles' Field Engineering. Prerequisite: Land surveying 100.

First semester; Tu., W., F., 9:00; Professor MORRIS, 24 M. H.

105. Railway Construction and Maintenance. (3 Hrs.) Primarily for third year students. Required of all candidates for degrees in civil engineering. Tunnels, trestles, track-work, earth-

work, signaling, grading, masonry, drawing. Prerequisite: Railway location 104.

Second semester; M., W., F., 9:00; Professor MORRIS, 24 M. H.

106. Roads and Pavements. (3 Hrs.) Primarily for fourth year students in civil engineering. Required of all candidates for degrees in civil engineering. Location, construction and maintenance; study and comparison of various types of roads; road making materials; lectures, recitations and field work.

First semester; M., W., F., 11:00; Professor MORRIS, 24 M. H.

107. Railroad Economy. (3 Hrs.) Optional for fourth year students in civil engineering. General theory of railroad location; effects of grades, curvature, and distance on operating expenses and revenue; railroad finance and management.

Second semester; Tu., Th., F., 11:00; Professor MORRIS, 24 M. H.

108. Highway Economics. (2 Hrs.) Optional for fourth year students in civil engineering. Continuation of Roads and Pavements 106, with special reference to permanent improvements and maintenance of existing roads. Re-surveys, relocation, drainage, etc.

Second semester; Tu., Th., 8:00; Professor MORRIS, 24 M. H.

110. Summer Field Practice. (4 Hrs.) Primarily for third year students in civil engineering. Required of all candidates for degrees in civil engineering. The survey of a railway line, including reconnaissance, preliminary survey, location, amping, etc., or other field problems of like nature. Students are encouraged to take the equivalent of this in actual experience by procuring summer employment on approved surveying corps.

Four weeks of six days per week from middle of June to the middle of July; Professor MORRIS.

113. Thesis. (3 Hrs.) Optional for fourth year students in civil engineering. (See page 131).

Second semester; hours to be arranged; Professor MORRIS, 24 M. H.

STEAM, GAS, AND EXPERIMENTAL ENGINEERING

120. Steam and Gas Machinery. (3 Hrs.) Required of third year students in civil engineering. Elementary thermodynamics, steam properties, calorimeters, fuels, boilers, engines, pumps, compressors, gas engines, turbines. Arranged for the selective design of parts of a platn. Prerequisite: Physics 7.

First semester; M., Tu., F., 10:00; Professor EMORY, 20 M. H.

121. Thermodynamics of Engineering. (3 Hrs.) Primarily for third year men. Required of all candidates for the degrees in mechanical, electrical and mining engineering. Mechanical theory of heat, thermodynamics of gases and vapors with special application to steam and other heat engines, compressed air and refrigeration. Prerequisite: Physics 6, 7, and Integral Calculus.

First semester; M., W., F., 9:00; Dean JONES, 16 M. H.

122. Heat Engines. (3 Hrs.) Required of candidates for degrees in mechanical, electrical and mining engineering. Continuation of Thermodynamics 121. Expansive working of steam and gas, principles of design, construction and operation of steam engines, air compressors, gas engines, and refrigerating machines.

Second semester; M., W., F., 9:00; Dean JONES, 16 M. H.

123. Power Plant Design. (3 Hrs.) Primarily for fourth year and graduate students. Required of candidates for degrees in mechanical, mining and electrical engineering. Embodies the details of the earlier courses of instruction in prime movers and motive-power machinery in respect to the design of steam and electric power and hydraulic plants for power transmission and manufacturing purposes; location of the plant; selection, arrangement, subdivision into units and installation; economics, organization and management of power and manufacturing plants; engineering specifications. Prerequisite: Thermodynamics 121.

First semester; M., W., F., 8:00; Dean JONES, 16 M. H.

124. Steam Boilers. (2 Hrs.) Elective for seniors. Heating value of fuels, combustion, economical production of steam; application of theory and practice in the design of steam boilers, chimneys, and accessories; steam piping and distribution. Prerequisites: Machine design 35 and Thermodynamics 121.

Hours to be arranged; Associate Professor GRUMELLA, 16 M. H.

125. Steam Turbines. (3 Hrs.) Optional for fourth year students in mechanical engineering, and for graduate students. Flow of saturated and superheated steam and the theory and design of the steam turbine. Prerequisite: Heat Engines 122.

Second semester; M., W., F., 9:00; Professor CHURCH, 26 M. H.

126. Gas Engines and Gas Engineering. (3 Hrs.) Primarily for fourth year and graduate students. Optional for fourth year students in mechanical engineering. The study of fuel gases, gas production and transmission, gas engines, etc. Prerequisite: Heat engines 122.

Second semester; M., W., F., 11:00; Dean JONES, 16 M. H.

127. Heating and Ventilating. (3 Hrs.) Primarily for fourth year students. Optional for students in mechanical engineering. Principles, comparative merits and design of various systems of ventilating, and heating by hot air, hot water, steam, electricity. A careful study of the systems in the different University buildings. Prerequisite: Thermodynamics 121, or Steam and gas machinery 120.

Second semester; M., Tu., W., 8:00; Associate Professor GRUMBEIN, 14 M. H.

128. Development and Utilization of Power. (3 Hrs.) For fourth year and graduate students. Optional for fourth year students in mechanical engineering. Historical development of heat engines, motors, including the stationary and marine engines, pumping engines, locomotives and accessories, such as pumps, heaters, economizers, condensers, purifiers, etc., with special reference to economy in power production and its effects on the manufacturing interests. Prerequisite: Power plant design 123.

Second semester; M., W., F., 9:00; Professor EMORY, 20 M. H.

129. House Heating and Ventilating. (2 Hrs.) Primarily for students in home economics. This course includes the study of the plumbing, heating and lighting systems in private houses; approximate cost; location of simple house plans; exterior finish; interior finish of walls, woodwork and floors. Prerequisite: Drawing 21, Home economics 5.

Second semester; Tu., F., 10:00; Associate Professor GRUMBEIN, 16 M. H.

130. Mechanical Laboratory. (2 Hrs.) Primarily for third year men. Required of all candidates for degrees in engineering. Theory, calibration and use of steam engine indicators, steam gages, thermometers; calorimeter tests of coal and natural gas; testing lubricating oil; analysis of flue gases; efficiency tests of simple engines, pumps, dynamos, motors and machinery of power transmission. Prerequisite: Physics 7 and Statics 70, and accompanying Steam and gas machinery 120 or Thermodynamics 121.

First semester; first section, S., 8:00; second section, F., 2:00; Associate Professor GRUMBEIN and Assistant Professor FORMAN, 10 M. H.

131. Mechanical Laboratory. (2 Hrs.) Required for all degrees in engineering. Continuation of Mechanical laboratory 129. Tensile, torsional, compressive, and transverse tests or wrought iron, cast iron, steel, and timber; transverse, compressive and absorption tests of stone, brick, cement, and concrete; also tests for fineness, specific

gravity, time of setting, and contsancy of volume of concrete. Prerequisites: Mechanical laboratory 130 and Mechanics of materials 71.

Second semester; first section, S., 8:00; second section, Th., 2:00; Associate Professor GRUMBEIN and Assistant Professor FORMAN, 10 M. H.

132. Engineering Laboratory. (2 Hrs.) Primarily for fourth year students. Required for degrees in mechanical, electrical and mining engineering. Tests of injectors, calorimeters, separators, multiple expansion steam engines, gas engines, steam boilers, air compressors, hydraulic motors, fans, blowers, and steam heating apparatus; practice in valve setting, flow of steam through orifices and pipes; application of Hirn's analysis to the steam engine, etc. Prerequisite: Mechanical laboratory 131.

First semester; Th., 8:00; Associate Professor GRUMBEIN and Assistant Professor FORMAN, 10 M. H.

133. Engineering Laboratory. (2 Hrs.) Required for degrees in mechanical and electrical engineering. Continuation of Laboratory 132. Combined tests of performances of boilers, engines, electrical and other power transmission machinery; testing of plants away from the University, when opportunity affords; special research work. Prerequisite: Engineering laboratory 132.

Second semester; Th., 8:00; Associate Professor GRUMBEIN and Assistant Professor FORMAN, 10 M. H.

134. Engineering Laboratory. (— Hrs.) Primarily for graduates and advanced students. Commercial tests and research work. Prerequisite: Engineering Laboratory 133. Credit will be given on the basis of the time spent in the laboratory and the progress of the student.

Hours to be arranged; Dean JONES and Associate Professor GRUMBEIN.

135. Thesis. (3 Hrs.) Optional for fourth year students in mechanical engineering. Investigation or original research on some special topic relating to steam, gas or experimental engineering.

Second semester; hours to be arranged; Dean JONES and Associate Professor GRUMBEIN.

136. Highway Laboratory. (— Hrs.) Elective for students in civil, mechanical, and mining engineering. Testing of stone, brick, sand, clay, concrete and bituminous and other materials entering into road construction, etc. Credit will be given on basis of time spent in the laboratory and the progress of the student.

Hours to be arranged; Dean JONES and Director WILLIAMS, —M. H.

STRUCTURAL AND HYDRAULIC ENGINEERING

141. Roofs and Bridges. (4 Hrs.) Primarily for third year students. Required of all candidates for the degre of B.S.C.E. Consists of three recitations and one drawing period per week. Stresses in plate-girder bridges and in simple roof and bridge trusses due to dead, live, impact, wind and snow loads; methods for determining the various loads by both analytical and graphical methods. Complete design of a wooden roof truss, including detailed drawing and estimate of weight. Prerequisite: Mechanics of Materials 71.

Second semester; M., Tu., Th., 10:00, and Th., 2:00 to 5:00; Professor DAVIS, 30 M. H.

142. Bridge Design. (5 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.C.E. Four exercises in the drafting room and one lecture or recitation each week. Computations and drawings are made for the complete design of a plate-girder and a riveted or pin-connected Pratt truss bridge. The computations determine the sections of all members, as well as the details, splices, riveting, etc. Prerequisite: Roofs and Bridges 141.

First semester; lecture Tu., 9:00; drawing room Tu., 10:00 to 12:00; Th., 9:00 to 12:00; W., F., 2:00 to 5:00; Professor DAVIS, 30 M. H.

143. Advanced Structures. (3 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. Determination of the loading and stresses in cantilevers, continuous girders and trusses, swing bridges, and metal arches; the arches include both the two-hinged and the three-hinged types in the spandrel-braced and arch-ribbed forms. Prerequisite: Roofs and Bridges 141.

Second semester; M., W., F., 9:00; Professor DAVIS, 30 M. H.

144. Structural Engineering. (2 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.M.E. A course of two recitations per week devoted to the study of the loads and stresses in simple beam and truss bridges and in roof trusses. The aim of this course is to give the student an insight into the design of engineering structures, while little emphasis is placed on the details of construction. Prerequisite: Mechanics of materials 71.

First semester; Tu., W., 11:00; Professor DAVIS, 30 M. H.

145. Steel Building Design. (3 Hrs.) For fourth year and graduate students. Elective. Mill buidings and office buildings of

steel. The design of trusses, beams, columns, and bracing for all loads; a critical study of details, methods of erection, weights and costs. A small mill building is completely designed and shop drawings made for same. Prerequisite: Roofs and Bridges 141.

Hours to be arranged; Professor DAVIS, 30 M. H.

146. Foundations and Masonry Construction. (3 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. A study of sheet piling, coffer dams, cribs, metal cylinder piers, piles, pneumatic caissons, open caissons, and other forms of bridge foundations; building foundations and methods of underpinning the same. The general subject of masonry construction is taken up. Prerequisite: Mechanics of Materials 71, and Mechanical Laboratory 130.

First semester; M., W., F., 9:00; Professor DAVIS, 30 M. H.

147. Concrete Construction. (4 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. A study is made of the constituent elements of concrete and properties of plain concrete, both from the experimental and theoretical standpoints. Special attention is given to the mechanics underlying the design of concrete beams, columns, and floor systems, and to experimental investigations and the methods of construction of concrete structures. Prerequisite: Foundations and Masonry Construction 146.

Second semester; Tu., Th., 9:00; W., F., 2:00 to 5:00; Professor DAVIS, 30 M. H.

148. Sanitary Engineering. (2 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.C.E. The course is divided into two parts; first, the sewage-carriage system; secondly, the modern methods of sewage disposal. Under the first is treated the design and construction of house-laterals, street-laterals and mains. The hydraulics of the flow of sewage in pipes is taken up, and the relative advantages of tile, iron and cement pipe discussed. Prerequisite: Hydraulics 73.

First semester; Tu., Th., 8:00; Professor DAVIS, 30 M. H.

149. Water Supply Engineering. (2 Hrs.) Primarily for fourth year students. Required of all candidates for the degree of B.S.C.E. The quantity of water required for city and town supplies, hydrology of drainage basins, stream flow and ground water supplies, determination of the necessary storage to insure a given supply, design of reservoirs, standpipes, etc., are studied. Conditions affecting the

quality of water and the various means of water purification are dealt with. **Prerequisite: Hydraulics 73.**

First semester; M., W., F., 8:00; Professor DAVIS, 30 M. H.

150. Hydraulic Construction and Water Power Engineering. (4 Hrs.) Primarily for fourth year and graduate students. Required of all candidates for the degree of B.S.C.E. in Option 1. Design and construction of high masonry dams, including a problem of the complete design, with working drawings, of a special masonry dam. Irrigation engineering, including special problems dealing with the storage and distribution of water. The engineering features of water power are taken up. Prerequisite: Hydraulics 73.

Second semester; Tu., Th., F., 8:00; W., 11:00; Professor DAVIS, 30 M. H.

151. Hydraulic Measurements. (1 Hr.) Primarily for fourth year and graduate students. The methods of measuring the volume of water flowing in open channels by means of floats and current meters. This work is made particularly effective through the accessibility of the Monongahela river. The principles governing the measurement of small quantities, as by orifices, weirs, etc., are treated exhaustively, and periodicals are searched for experimental data along these lines. Prerequisite: Hydraulics 73.

First semester; M., 2:00 to 5:00; Professor DAVIS, 30 M. H.

152. Thesis. (3 Hrs.) For fourth year students. Required of all candidates for the degree of B.S.C.E. Special design, investigation or original research on some assigned topic relating to structural hydraulic or sanitary engineering.

Second semester; hours to be arranged; Professor DAVIS.

GENERAL AND MISCELLANEOUS

160. Building Superintendence. (2 Hrs.) An elective course arranged for fourth year students in engineering and others having the preparation. Study of construction and inspection of the foundation, stone, cement, brick work, roof trusses, roof covering, veneer work, cage construction, preservation of iron work, fire proofing, plastering, inspection of gas fitting, electric and heating systems. Specifications and contracts. Prerequisite: Kinetics 72.

Either semester; time to be arranged; Professor EMORY, 20 M. H.

161. Contracts and Specifications. (2 Hrs.) Primarily for fourth year men. Required of all candidates for the degree of B.S.C.E. General laws of contracts and specification writing. The fundamental principles of contract essentials are first taken up,

followed by contracts dealing with agency, torts, independent contractor, corporations, partnerships, sales and transportation. Specification writing is taken up and the student by actual practice is taught the elements of the work.

Second semester; M. W., 8:00; Professor EMORY, 30 M. H.

162. Engineering Society. (1 Hr.) Primarily for third year students. Required of all candidates for degrees in engineering. Membership, attendance and active participation in the Engineering Society. See special announcements page 131.

Throughout the year; fortnightly, F., 7:30 p. m.; Professor EMORY, 15 M. H.

163. Engineering Society. (1 Hr.) For fourth year students. Required of all candidates for degrees in engineering. Continuation of Engineering 162.

Throughout the year; fortnightly, F., 7:30 p. m.; Professor EMORY, 15 M. H.

THE SCHOOL OF MINES

The Summer School of the Department of Mining at West Virginia University has been established at the request of the mining interests of the state. Its purpose is to offer to men engaged in the mining of coal, from the lowest in authority to the highest, an opportunity to receive a short course of instruction in subjects pertaining strictly to their life work.

The prime thought in instituting this school is that it shall be of service to both the mine operators and to their employees. The demand for better trained men is constantly coming from the mine owner, and the employee is frequently unable to respond because of his limited educational advantages in early life.

The School makes an effort to help the cause of both. No one, however young or old, however well or ill prepared is barred from enrolling, although it is evident that those who are better prepared in the common school subjects and in the understanding of general mining literature will naturally receive the most benefit.

COURSES OF STUDY

The subjects dealt with in the Summer School are briefly outlined below. They are so chosen as to give the broadest and most helpful instruction in the short space of time allotted.

1. MINE GASES, PROPERTIES AND CHARACTERISTICS, AND METHODS OF TESTING.

The common mine gases such as methane, carbon dioxide (black damp), carbon monoxide (white damp), and hydrogen sulphide (stink damp), are generated in the presence of the class and their several characteristics shown by a series of laboratory experiments. Different types of safety lamps are tested in known percentages of methane and the length of cap noted. Approved methods of testing for other mine gases are demonstrated.

2. MINE EXPLOSIONS.

The subject of mine explosions is given much attention, and a study made of all the underlying causes and the precautions to be

observed whereby the possibility of occurrence may be lessened. The part that dust plays is shown by several experiments and a true dust explosion obtained. Instruction is given in the use of the anemometer, barometer, hygrometer and several of the gas indicators.

3. MINE VENTILATION.

Under this heading is included all that relates to the coursing of air in mines. Especial attention is given to the principles upon which ventilation is based, and to the solution of practical problems. A small mine fan connected to a model of a mine makes it possible to perform a number of experiments in ventilation and derive values for the coefficient of friction, power on the air, efficiency of the system, etc., etc.

4. PREVENTION OF ACCIDENTS TO MINERS AND PROPERTY.

This is a lecture course and is accompanied with lantern slides showing proper and improper methods of performing mine tasks, and a discussion of the means whereby accidents and loss of life may be prevented.

5. INSTALLATION AND CARE OF MECHANICAL AND ELECTRICAL EQUIPMENT ABOUT MINES.

This is a lecture course dealing with mining machinery. It treats of the methods of setting boilers, pumps, water heaters, etc.; engines, generators, and air compressors; the wiring of mines and methods of finding the proper size of wire for carrying a stated amount of current; the use of high and low pressure compressed air underground; lubrication; piping; etc., etc.

6. THE ANALYSES OF MINE AIR.

Under this heading are taught simple and sufficiently accurate methods of determining percentages of methane and carbon dioxide in mine air. Sufficient practice is given each member of the class to insure a thorough understanding of the apparatus.

7. INSTRUCTION IN FIRST AID TO THE INJURED.

This course is given by an instructor from the Department of Medicine, and is so well understood as to require no description.

8. INSTRUCTION IN MINE RESCUE WORK.

The student is first required to become familiar with the construction and operation of the Draeger and Proto apparatus, both of which are in use throughout the course. A commodious smoke chamber has been erected in the basement of Mechanical Hall and is fitted with all the necessary appliances. The regular Bureau of Mines certificate has been issued to those who took this course last summer.

9. QUIZZES.

Two hours will be devoted each week to a review of questions asked at examinations already held in this state and other states. This affords the candidate for a certificated mine position an excellent opportunity to become familiar with the usual form of questions asked at these tests and their answers.

10. MECHANICAL DRAWING.

In this course are taught lettering, sketching, and the making of drawings, tracings and blue prints.

11. INSPECTION TRIPS.

Morgantown is situated practically at the edge of three extensive coal fields; the Fairmont, the Decker's Creek, and the Connellsville fields. The nearest large workings in the Pittsburg coal seam are within a mile of the University, and the nearest in the Upper Freeport seam is only four miles away. Connellsville is forty-five miles distant from Morgantown, and Pittsburg is 103 miles away. Last summer the mines in the Connellsville region, the Annabelle mine of the Four States Coal & Coke Company, and several of the mines of the Consolidation Coal Company were visited.

LECTURES ON MINING

Lectures on a variety of timely mining topics will be given at various times throughout the session by practical mining men of well established reputation from this and adjoining states. These lectures will be followed by a discussion in which all present are invited to take part.

OTHER COURSES

In addition to the courses enumerated above, opportunity is offered the student in mining to spend as much time as he feels he can allow in the machine shop and woodturning shop where practical courses are given throughout the entire six weeks. The following courses are also offered subject to election:

A Course in Mining Law.

A Course in Principles and Methods of Blasting.

A Course in Mathematics, including Algebra, Geometry, Trigonometry, Analytic Geometry or Calculus.

During the entire School period other departments of the University will also be in session offering a wide range of subjects. Election of any of the subjects taught in the other schools is open to students in mining.

FEES AND EXPENSES

Tuition is free to West Virginia students but a matriculation fee of $5 is payable upon entering the School by all students. Good board and room can be had for $5 per week. The expense of railroad fare will depend upon the distance from Morgantown, and other expenses upon the wishes of the student, but it is believed that $50 or $60 should cover all necessary expenses for the six weeks.

TIME OF OPENING

The second annual session of the School of Mines will begin Monday, June 22nd., 1914, and continue until Saturday, August 1st., a period of six weeks.

SCHOOL OF GOOD ROADS

A. D. WILLIAMS, Director.

The School of Good Roads has been organized to meet the demand for instruction in highway construction and maintenance, and to comply with the requirements of Section 17, Chapter 41, of Acts of the Legislature of 1913 as follows: "All county road engineers shall visit the office of the state road bureau at least once in every year, and shall receive instruction in road building for at least ten days, and the bureau may fix the time or times when said annual visit may be made by such county road engineers for the purpose of receiving such instructions." This school is under the joint supervision of the University and the State Road Bureau and is made the official school of instruction for county road officials. The school, however, is open to all who are interested in good roads regardless of entrance requirements or previous experience.

FACULTY.

Instruction in this school will be given by the regular faculty of the College of Engineering and the Staff of the State Road Bureau. Lectures will be given on road subjects by eminent authorities from this and other states.

All who attend this school are required to register, but no fees will be charged.

The schedule for the year 1914-15 will be similar to that given from February 10th. to 20th., 1914, as follows:

1. Organization of party, field instruments, camp equipment, preliminary surveys, location, alignment, grades, rights-of-way, sketches, maps and reports. Professor MORRIS.

2. Earth roads, construction, materials, soils, drainage including ditches, slopes, ripraps, and retaining walls. A study of surfaces, climatic conditions, the road drag, the grader, plows, steam shovel and other machinery, organization of work, records, costs, estimates and reports. Professor MORRIS.

3. Road materials of West Virginia and their influence, the selection of the class of road, location of limestone, flint, granite, sand and other stones, gravel, shale, sand and clay deposits. Dr. I. C. WHITE.

4. Macadam roads including the study of water, chemical, and bituminous bound; construction, wear, etc.; asphalt, tarvia and other roads. Director WILLIAMS.

5 Brick roads and pavements, including the study of brick making, testing, wood block, granite and other paving blocks. Professor MORRIS.

6. Cement and concrete roads. A study of the cement and concrete road, its construction, expansion, maintenance, etc., including laboratory tests, quantities and aggregates. Director WILLIAMS.

7. Maintenance and repairs, a study of machinery, tools and methods of repairing all classes of roads and conditions under which repairs can be economically made. Professor MORRIS.

8. Bridges, location, class and type, foundations and culverts. Professor DAVIS.

9. Demonstration tests of road materials in the Highway Laboratory, including a study of testing machinery for non-bituminous materials. Illustrated lecture on mining, manufacturing, and testing, and inspection of bituminous materials. Dean JONES and Dr. FORMAN.

10. Management engineering—a study of organization; systematizing and managing highway work including accounting and reports. Director WILLIAMS.

THE COLLEGE OF AGRICULTURE

FACULTY AND STAFF

THOMAS EDWARD HODGES, A. M., LL. D., *President*

E. DWIGHT SANDERSON, B. Sc. Agr.,, *Dean*

WILLIAM HORACE ALDERMAN, B. Sc. Agr., *Professor of Horticulture*

ISAAC SCOTT COOK, Jr., B. Sc. Agr., *Professor of Agronomy*

*THOMAS CLARK ATKESON, Ph. D., *Professor of Animal Husbandry*

**EARL WOODELL SHEETS, B. S. Agr., *Professor of Animal Husbandry*

MYRON J. ABBEY, A. B., *Professor of Agricultural Education*

**FIRMAN E. BEAR, M. Sc., *Professor of Soils*

LEONARD MARION PEAIRS, B. Sc. Agr., M. S., *Associate Professor of Entomology*

PAUL BOMBERGER BENNETCH, B. S. Agr., *Associate Professor of Dairy Husbandry*

ORVILLE M. JOHNSON, B. S. Agr., *Associate Professor of Farm Management*

CHARLES AUGUSTUS LUEDER, D. V. M., *Assistant Professor of Veterinary Science*

EDGAR L. ANDREWS, B. S. Agr., *Assistant Professor of Poultry Husbandry*

RALPH RODOLF JEFFRIES, B. Sc., *Instructor in Horticulture*

EUGENE CURTIS AUCHTER, B. Sc. Agr., *Instructor in Horticulture*

WILLIAM BECK KEMP, B. S., *Instructor in Agronomy*

LUTHER FRANCIS SUTTON, B. Sc., B. S. Agr., *Instructor in Horticulture*

†RALPH EDWARD HUNT, B. S. Agr., *Instructor in Animal Husbandry*

*Retires July 1, 1914.

**Effective July 1, 1914.

†Resigned, March 1, 1914.

HENRY DORSEY, B. S. AGR., *Instructor in Agronomy*

CHARLES E. MYERS, A. B., *Student Assistant in Horticulture*

BERT HOLMES HITE, M. SC., *Chemist* (Experiment Station)

HORACE ATWOOD, M. SC. AGR., *Poultryman* (Experiment Station)

NAHUM JAMES GIDDINGS, M. SC., *Plant Pathologist* (Experiment Station)

WILLIAM EARL RUMSEY, B. SC. AGR., *State Entomologist* (Experiment Station)

*LEE I. KNIGHT, PH. D., *Plant Physiologist* (Experiment Station)

†DAVID CARLTON NEAL, B. SC., *Assistant Plant Pathologist* (Experiment Station)

ANTHONY BERG, B. S., *Assistant Plant Pathologist*

**CLEVELAND HENDRICK SCHERFFIUS, *Tobacco Investigations*

CHARLES EDWARD WEAKLEY, JR., *Assistant Chemist* (Experiment Station)

FRANK BATSON KUNST, A. B., *Assistant Chemist* (Experiment Station)

HUBERT HILL, B. SC., M. SC., *Assistant Chemist* (Experiment Station)

MARTHA ANN STEWART, *Librarian*

ORVILLE MERTON KILE, B. S. AGR., *Agricultural Editor*

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CALVIN R. TITLOW, *Director of Agricultural Extension Department*

**NAT. T. FRAME, B. A., *State Agent in Charge of Farmers' Co-operative Demonstration Work*

**WILLIAM HENRY KENDRICK, B. S., *State Agent in Charge Boys' Clubs*

NELL MARY BARNETT, B. S., *Instructor in Home Economics* (Extension Department)

**SADIE RAY GUSEMAN, B. SC., *State Agent in Charge Girls' Clubs*

FACULTY COMMITTEES

Course of Study. Dean SANDERSON, Professors ALDERMAN, PEAIRS, BENNETCH and O. M. JOHNSON.

Farm Operations. Professors ALDERMAN, BENNETCH and COOK.

**In co-operation with U. S. Department of Agriculture.

*In co-operation with the University of Chicago.

†Resigned February 1, 1914.

ORGANIZATION

All the agricultural work of the University is organized under the College of Agriculture but for purposes of administration is divided among three branches, viz:—

(1) Resident instruction for students pursuing studies at Morgantown, in the classrooms and laboratories, as usually organized for college work (pages 176 to 201).

(2) Investigation and research as carried on at Morgantown and throughout the State by the staff of the West Virginia Agricultural Experiment Station (page 202).

(3) Extension work for all citizens of the State who desire instruction in agriculture while living on the farm, which is given by the Department of Agriculture Extension (pages 203 to 205).

These primary divisions of the work of the College of Agriculture should be clearly distinguished. Most of the men on its staff are engaged both in college instruction, experiment station research and extension teaching; none of them give their entire time to instruction; a few give their entire time to experiment station work and several are engaged entirely in extension work. Those who do no teaching are so indicated in the above list of the faculty and staff.

AIM AND SCOPE

The training given by the College of Agriculture is designed to fit its students for farm life, or for work as teachers or investigators of agricultural subjects. A thorough training in the general sciences underlying scientific agriculture is given. A large part of the course consists of technical work in the various branches of agriculture. The aim in these courses is to make plain the principles underlying agricultural science, and to give as much practice work as facilities will permit, so that the student will receive a training fitting him for efficient work. The curriculum is planned to give the student a general knowledge of all phases of agriculture, but at the same time to afford him opportunity to specialize in the subjects in which he is particularly interested.

In addition to the technical work in agriculture and general science, courses in English, public speaking and economics are required in the College of Arts and Sciences, as the college hopes to train its students to be not only progressive farmers but good citizens, and leaders in rural life.

Opportunity is also offered those who wish to prepare for the teaching of agriculture in high schools and normal schools to take the regular courses in the Department of Education and in Agricultural Education, thus securing the best possible professional training for such work.

EQUIPMENT

The College is now provided with well equipped laboratories in all departments. In Martin Hall the agronomy laboratory occupies one-fourth of the first floor, on which are also the offices of that department and the offices and classrooms of the animal husbandry department. In the basement is a large laboratory for work in soil physics and chemistry with the most modern equipment. A commercial creamery equipped with the best machinery is operated the year round, in which students can secure instruction in creamery methods and also in the bottling and handling of milk, as the College serves milk from its dairy herd to the best trade in the city. A farm dairy laboratory is supplied with hand churns and separators for instruction in farm dairying, and another fourth of the basement consists of a large milk-testing laboratory.

The entomological laboratory is located on the second floor of Agricultural Hall and is supplied with microscopes, rearing cages, charts, models, and collections. Next to it is the agricultural library and reading room, containing over 5000 volumes upon agricultural and scientific subjects and thousands of pamphlets, including the bulletins and reports of all the state agricultural experiment stations, the United States Department of Agriculture, and similar institutions in foreign countries. The lower floor of Agricultural Hall is occupied by the laboratories of the departments of chemistry and plant pathology of the Experiment Station, in which a few advanced students may secure valuable training.

The horticultural department now occupies the second floor of a new frame building erected temporarily to furnish space for its growing activities, where it has a separate room for its library, a classroom, a laboratory, a workroom for budding, grafting, packing apples, etc., and four offices for its staff. The basement of this building is occupied with all sorts of farm machinery used in the instruction given by the department of agronomy. Three greenhouses just back of Agricultural Hall, which have just been supplied with an independent heating plant, and a row of eleven concrete cold-frames and hot-beds furnish means for instruction in floriculture and vegetable growing under glass.

The students of the College of Agriculture receive instruction in the laboratories of the various scientific departments of the University with students from the other colleges.

The University Farm is located one mile north of the campus. It is a typical West Virginia farm on which the tillable area has been brought to a high state of fertility and is used for gardens and experimental plats. The dairy barn has been remodeled with cement

floors, feed gutters, and walls, and iron stanchions so that it is a strictly modern sanitary dairy barn. Attached to it is a small milk house containing scales and cooler. The dairy herd numbers about 30 head and includes representative cows and a bull of each of the Jersey, Holstein, Ayreshire, and Shorthorn breeds. Southdown, Shropshire, Rambouillet, and Delaine-Merino sheep are to be found in the sheep barn and Berkshire and Duroc-Jersey hogs in portable houses. A modern open shed for steer feeding adjoins the dairy barn, in which thirty-five head of young cattle are being used for feeding experiments. A new horse barn furnishes stall room for three teams, with box stalls. A building which will accommodate 50 to 75 students for stock judging during inclement weather has been erected and will furnish opportunity for live stock judging throughout the year. The poultry department has a national reputation for its experimental work and is well equipped with three large open-front houses, each of which will accommodate 800 fowls, an incubator house, six colony houses, a Petaluma brooder house, and numerous portable colony houses. The poultry work is conducted on a commercial scale and furnishes opportunity for training in the best methods of poultry management.

ENTRANCE REQUIREMENTS

For admission to the College of Agriculture, the candidate must have credit for fourteen units, obtained by examination or on certificate from a duly accredited secondary school.

Of the fourteen units which must be offered for admission to the course leading to the degree of Bachelor of Science in Agriculture, nine are definitely prescribed as follows:

		Units
English		3
French, German, or Latin (German is recommended)		2
History		1
Mathematics		2
Algebra	1	
Plane geometry	1	
Science		1
The unit offered may be either physics, chemistry, botany, zoology, or botany and zoology.		
Total prescribed		9

The remaining five units must be chosen as elective from the list given on page 60 in the announcements of the College of Arts

and Sciences. Prospective students are urged to take free hand drawing if it can be secured in the secondary school. A detailed statement of the work required for each unit of required and elective work is given on page 51.

The faculty strongly recommend that students who have not had practical farm experience spend at least one year on a first class general farm before pursuing the course. It is impossible for students who have not had farm experience to secure the fullest benefit of the course.

On entering the college, each student will be examined as to his ability to perform the various operations necessary to carry on farm work and as to his knowledge of farming. A failure to pass this examination will not exclude him from college; another opportunity will be provided at the beginning of the second year to pass off the requirement. If the student then fails he will be required to remain at the college during the summer vacation between his second and third year, or to work for the same period on some farm approved by the committee in charge. He will receive his final examination on the subject at the beginning of the junior year. This work will be reported on as a preparatory study, and will have no credit value as a part of the required work of the course.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Credits Required

The degree of Bachelor of Science in Agriculture will be conferred upon any student who satisfies the above entrance requirements, and offers one hundred and forty-four hours credit for college courses including a satisfactory thesis.

The "semester hour" is the standard for computing the amount of work required for graduation. The "hour" represents the amount of work done in one semester (eighteen weeks) and in one recitation hour with two preparation hours a week, or in three hours practice or laboratory work requiring no outside preparation. No student is permitted to register for less than fifteen hours or more than twenty hours of work in any one semester.

Required and Elective Courses.

Of the one hundred and forty-four hours credit required for the degree, one hundred hours are definitely prescribed, as indicated in the curriculum below. Students not required to take work in military science must offer two additional elective credits to make up the

total of one hundred. The remaining forty-four hours' credit in all must be elected from such courses in the College of Agriculture as may be prescribed by the class officer, and courses amounting to twelve hours in all must be elected from the courses given in the College of Arts and Sciences.

Class Officer.

The Dean of the College of Agriculture will act as class officer for all freshmen and sophomore students in agriculture. The head of the department in which the student elects thesis work will be his class officer for the junior and senior years.

Theses.

Every candidate for the degree of Bachelor of Science in Agriculture will be required to prepare a thesis on some subject relating to a special branch of agriculture or other department of science applied to agriculture. The thesis must be based upon the student's personal work. Before the close of the sophomore each student shall indicate to the dean the department in which he wishes to take his thesis. Theses may be elected in the following departments.

Agricultural education	Entomology
Agronomy	Farm management
Animal husbandry	Horticulture
Dairying	Poultry husbandry
Botany and bacteriology	Soils

The subject of the thesis with the approval of the head of the department in which it is to be taken must be presented in writing to the dean not later than November first of the academic year in which the student is a candidate for a degree. The completed thesis must be presented to the head of the department concerned for his approval not later than thirty days prior to commencement day.

Classification of Students.

To be classified as a freshman in the College of Agriculture a student must have credit for at least twelve units of entrance requirements; to be classified as a regular freshman he must have fulfilled all entrance requirements. To be classified as a sophomore he must have credit for 26 hours of college work; as a junior, 64 hours; and as a senior, 100 hours.

SUMMER COURSES.

It will be noted that many of the courses described in the following pages are also given in the Summer School. In many cases these courses may be pursued to better advantage during the summer. Students who are admitted with advanced college standing or students who for any reason may be compelled to do so, may complete the prescribed course for the degree of Bachelor of Science in Agriculture by taking full work for three summer sessions (10 hours each) and three academic years, but only students of exceptional ability or mature age should undertake such a curriculum, which should be arranged with the Dean in advance.

ADMISSION WITH ADVANCED STANDING.

Students from other institutions will be given credit for work already done in accordance with the general rules for advanced standing on page 32 of the catalog but at least one year of resident work will be required for the baccalaureate degree in agriculture.

GRADUATE WORK.

Graduates of the College of Agriculture, or from institutions with equivalent work, may be admitted to the University as candidates for the degree of Master of Science, M.S. (Agr.), under the conditions prescribed on page 37.

SPECIAL STUDENTS.

Persons who do not desire to become candidates for a degree, may, by permission of the committee on classification and grades, be admitted as special students, subject to the provisions set forth on page 31.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE.

Freshman Year—First Semester.

Introductory Physics (Phys. 1)	8:00	M.W.F.	3	
Physics Laboratory (Phys. 2)	2:00	Th.	1	
Agricultural Botany (Botany 3)	9:00	W.F., 2:00 W.F.	4	
Farm Crops (Agronomy 2)	9:00	M., 2:00 T. 8:00 T.Th.	4	
Market Classes and Judging (An. Husb. 13)	10:00	M., 2:00 M.	2	
Rhetoric and Composition (Eng. 1)	11:00	M.W.F.	3	
Military Science (1)	12:00	M.T.W.Th.	1	18

Freshman Year—Second Semester.

Introductory Physics (Phys. 3)	8:00	M.W.F.	3	
Physics Laboratory (Phys. 4)	2:00	Th.	1	
Woodshop (Engineering 2)	8:00	T.Th.	1	
Agricultural Botany (Botany 4)	9:00	W.F., 2:00 W. F.	4	
Elementary Vegetable Gardening (Hort. 3)	10:00	T.Th., 2:00 T.	3	
Rhetoric and Composition (Engl. 2)	11:00	M.W.F.	3	
Military Science (2)	12:00	M.T.W.Th.	1	
Mechanical Drawing (Eng'g 23)	9:00	S., 2:00 M.	2	18

Sophomore Year—First Semester.

Elem. Breeding and Feeding (An. Husb. 14)	8.00	M.W.F.	3	
Inorganic Chemistry (Chem. 1)	9:00	M.W.F. 2:00 M.orTh.	4	
English Literature (Engl. 26)	9:00	T.Th.	2	
Elementary Pomology (Hort. 2)	10:00	T.Th., 2:00 W.	3	
General Geology (Geology 2)	11:00	M.W.F.	3	
General Bacteriology (Bot. 10)	11:00	T.Th., 2:00 T.	3	
Military Science (3)	12:00	M.T.W.Th.	1	19

Sophomore Year—Second Semester.

Soil Physics and Chemistry (Soils 1)	8:00	M.W.F., 2:00 F.	4	
Inorganic Chemistry (Chem. 2)	9:00	M.W.F., 2:00 M.	4	
English Literature (Engl. 27)	9:00	T.Th.	2	
Am. Social and Econ. History (Hist. 29)	11:00	M.W.F.	3	
Farm Dairying (Dairy 1)	11:00	T.Th., 2:00 T.	3	
Military Science (4)	12:00	M.T.W.Th.	1	
Forge Shop (Eng'g 7)				
Sec. 1 1st half semester				
Sec. 2 2nd half semester	9:00	S., 2:00 W.	1	18

Junior Year—First Semester.

Principles of Economics (Econ. 1)	8:00 M.W.F.	3		
Animal Biology (Zool. 1)	8:00 T.Th., 2:00 Th.F.	4		
or General Entomology (Entom. 1)	11:00 M.W.F., 2:00 Th.	4		
Extemporaneous Speaking (Pub. Sp. 70)	10:00 M.F.	2		
Electives*		9	18	

Junior Year—Second Semester.

Principles of Economics (Econ. 2)	8:00 M.W.F.	3	
Vertebrate Zoology (Zool. 2)	8:00 T.Th., 2:00 Th.F.	4	
or Economic Entomology (Entom. 2)	11:00 T.Th., 2:00 Th.	3	
Farm Management (1)	11:00 M.W.F.	3	
Electives*		8 or 9	18

Senior Year—First Semester.

Genetics (Anim. Husb. 11)	8:00 M.W.F.	3	
or Plant Breeding (Hort. 13)	11:00 M.W.F.	3	
Elective*		15	18

Senior Year—Second Semester.

Rural Economics (Farm Mng. 2)	9:00 M.W.F.	3	
Elective*		15	18

*Electives.—Either Veterinary Science 1 or Botany 12 (3 hrs.) and at least 24 hours additional must be elected in the College of Agriculture, and not less than 12 hours must be elected from the College of Arts and Sciences during the junior and senior years.

TRAINING FOR TEACHERS OF AGRICULTURE.

The demand for thoroughly trained teachers of agriculture in high schools and academies is much in excess of the number available and this promises to be true for several years to come. A special course has therefore been arranged which will give ample training in the fundamentals of modern agriculture as well as in the theory of education.

Students taking the work in education will elect agricultural education as a major during the junior and senior years and will be required to take Education 1, 2, 4, 5, 10, 12 and 16 (20 hrs. total) in the College of Arts and Sciences and Agricultural Education 1. Students completing the above twenty hours in the department of education will be eligible to a state teachers' certificate.

ONE-YEAR TEACHERS' COURSE IN AGRICULTURE.

With the introduction of agriculture into the high school curriculum there has been a demand from high school teachers of science, who have already received their bachelor's degree, for a course in agriculture which will fit them for teaching elementary agriculture. The following schedule is therefore given for the guidance of those wishing a year's work in elementary agriculture. Most of these courses are also offered in the Summer School. Those desiring to prepare themselves more fully for teaching several courses in elementary agriculture should qualify for the degree of Bachelor of Science in Agriculture. (See page 177)

First Semester.

Elementary Feeding and Breeding	(An. Husb. 14)	8:00 M.W.F.	3
Farm Crops	(Agronomy 2)	8:00 T.Th. 9:00M. 2:00T.	4
Market Classes and Judging	(Anim. Husb. 13)	10:00 M., 2:00 M.	2
Elementary Pomology	(Horticulture 2)	10:00 T.Th., 2:00 W.	3
General Entomology	(Entom. 1)	11:00 M.W.F., 2:00 Th.	4
Rural Engineering	(Agron. 5)	11:00 T.Th., 8:00 S.	3
			19

Second Semester.

Soil Physics and Chemistry	(Soils 1)	8:00 M.W.F., 2:00 F.	4
Rural Economics	(Farm Mng. 2)	9:00 M.W.F.	3
Secondary Agriculture	(Education 16)	9:00 T.Th., 2:00 W.	3
Elementary Vegetable Gardening	(Hort. 3)	10:00 T.Th., 2:00 T.	3
Farm Management	(1)	11:00 M.W.F.	3
Farm Dairying	(Dairy 1)	11:00 T.Th., 2:00 Th.	3
			19

REQUIREMENTS FOR CANDIDATES FOR B.S.Agr. DEGREE WHO ALREADY HOLD THE DEGREE OF B.A. OR B.S.

Students who have received the degree of Bachelor of Arts or Bachelor of Science from West Virginia University or any institution of similar standing ,may receive the degree of Bachelor of Science in Agriculture upon the following conditions:

(1) The completion of Physics 1, 2, 3, 4, Chemistry 1, 2, Botany 1, 2, and Zoology 1, 2, or Entomology 1, 2, or equivalent courses.

(2) The completion of the 31 hours of courses in the College of Agriculture required in the Curriculum on page 180.

(3) The completion of at least twenty hours of elective courses in the College of Agriculture.

Attention is called to the fact that fifteen hours from the following courses may be credited toward the B.A. or B.S. Degree in the College of Arts and Sciences (See page 64), Agricultural Education 1 (History of Agricultural Education) 2 hrs.; Agronomy 1 (Farm Crops), 4 hrs.; Soils 1 (Soil Physics and Chemistry), 4 hrs.; Animal Husbandry 1 (History and Characteristics of Breeds), 3 hrs.; Animal Husbandry 14 (Elementary Breeding and Feeding) 3 hrs.; Animal Husbandry 11 (Genetics), 3 hrs.; Entomology 2 (Economic Entomology), 3 hrs.; Farm Management 1, 3 hrs.; Horticulture 2 (Elementary Pomology), 3 hrs.; Horticulture 3 (Elementary Vegeable Gardening), 3 hrs.; Horticulture 13 (Plant Breeding), 3 hrs.

The following courses required in the College of Agriculture are regular electives in the College of Arts and Sciences: Entomology 1 (General Entomology) 4 hrs.; Farm Management 2 (Rural Economics), 3 hrs.; Mechanical Drawing (Eng'g 23) 2 hrs.; Wood Shop (Eng'g 2) 2 hrs.; Education 16 (Secondary Agriculture) 3 hrs. is elective in both colleges.

Students who desire the advantage of the broader training secured by first taking a degree in the College of Arts and Sciences, and who then expect to take the degree of Bachelor of Science in Agriculture, may so arrange their curriculum as to enable them to take sufficient of the elective courses above mentioned to secure the degree in Agriculture in one year or in one year and a summer school session after receiving the first degree.

COURSES OF INSTRUCTION

In the following announcements each course described counts for the number of hours in parenthesis after the name of the course. Whenever possible, the semester during which the course is given, the hour, the name of the instructor, and the class room, are stated at the end of the announcement of each course. For convenience it is customary to designate the couurses of study by the name of the department and the number of the particular course. Thus the course in farm crops is known as "Agronomy 2"; the course in rural economics is known as "Farm Management 2"; etc. The abbreviations used are: W., Woodburn Hall; S., Science Hall; M., Martin Hall; M.H., Mechanical Hall; H., Horticultural Building; A., Agricultural Building; N. F., North Fife Cottage; L., Library.

Only the technical courses offered primarily for the students in agriculture are described here. For detailed description of the other courses listed on page 180 as required or elective in the agricultural curriculum, see the announcement of courses in the College of Arts and Sciences, and the College of Engineering.

Courses marked by a star (*) may be offered for credit in the College of Arts and Sciences. Courses marked by two stars (**) are regular electives in the college of Arts and Sciences.

AGRICULTURAL EDUCATION.

Professor ABBEY.

***1. History of Agricultural Education.** (2 Hrs.) The purpose of this course is to give a better understanding and appreciation of present day tendencies in agricultural education. The origin and development of the movement for agricultural education in Europe and the United States will be considered. The effect of this movement upon education as a whole will be noted.

Second semester; T. Th., 10:00.

****16. High School Agriculture.** (3 Hrs..) Required of juniors who desire a State Teacher's Certificate. A course designed for persons who expect to teach agriculture in the high school. The first part of the work will be devoted to subject matter suitable for a high school course in agriculture. This will be supplemented by reports, lectures and laboratory work. The second half will be devoted to methods of teaching agriculture from the high school standpoint. Organization of the class, equipment, laboratory instruc-

tion, field excursions, experimental plats, community work and agricultural clubs will be considered.

Second semester; T. Th., 9:00; T. 2:00.

AGRONOMY.

Professor COOK, Mr. KEMP and Mr. SMITH.

***2. Farm Crops.** (4 Hrs.) Required of Sophomores. Lectures and recitations on cereals, forage crops and miscellaneous crops; history, production, seeding, cultivation and marketing; time and methods of planting and preparation of soil.

First semester; M., 9:00; T., Th., 8:00; T., 2:00; Professor COOK and Mr. KEMP, 4 M. Also given in the Summer School.

4. Farm Machinery. (2 Hrs.) Elective. The study of power machinery, setting up and taking apart of grain binders, mowers, drills, corn harvesters, corn planters, plows, cultivators, and proper adjustment of machines.

Second semester; F., 10:00; laboratory, S., 9:00-12:00; Professor COOK and Mr. KEMP, H.

5. Rural Engineering. (3 Hrs.) Elective. Lectures on the uses of concrete on the farm, tile drainage, construction of fences, barns, sheds, and feed racks for cattle and sheep, and the methods of determining the area of fields; practice in laying out tile drains and in drafting working drawings. Prerequisite: Agronomy 2 and Engineering 23.

First semester; T., Th., 11:00; S., 9:00-12:00; Professor COOK, 4 M.

7. Grain Growing. (3 Hrs.) Elective. The culture, selecting storing, testing, and harvesting of corn and small grains. A study will be made of the commercial grades of grain, also the cost and most economical methods of production. The common diseases and insect enemies of grains and means of prevention will be studied. The laboratory work consists of grain judging, germination of seeds, determining best depths of planting, grading and cleaning grains for planting and treatment of smuts. Prerequisite: Agronomy 2.

Summer School; hours to be arranged; Professor COOK, 4 M.

8. Advanced Crop Production. (3 Hrs.) Elective. A study of farm crops, habits of early growth, rate of growth, variations, correlations, reproduction; effects of different methods of planting. Also experiment station methods of variety testing, desirable area of plots, layout of test plots, maintaining fertility on such plots, crop handling, record keeping and interpretation of results. Prerequisite: Agronomy 2, 7, 10.

Summer School; hours to be arranged; Professor COOK, 4 M.

9. Thesis. (1 or 2 Hrs.) Students who intend to do thesis work in Agronomy must arrange their problem before the close of their junior year so that the field work can be arranged.

First and second semesters. Hours to be arranged.

10. Forage Crops. (3 Hrs.) Elective. This course is a continuation of the work given on forage crops in course 2. A thorough study is made of all the important grasses and clovers that can be grown for meadow and pasture purposes. Lectures and recitations. Prerequisite: Agronomy 2.

First semester; T., Th., 9:00; W., 2:00; Mr. DORSEY, 4 M.

11. Plant Industry Seminar. (1 Hr.) Elective for juniors and required of seniors and graduates whose major is soils or agronomy. Papers will be prepared and read by members upon subjects pertaining to the improvement of soils and plants, followed by a general discussion. Students doing thesis work will report from time to time upon their work. This course may be continued more than one year and an additional credit given for each year's work.

First and second semester; M., alternate weeks, 2:00; Professors COOK and BEAR, 4 M.

12. Research in Farm Crops. A course for graduate students giving an opportunity for research into the problems of breeding farm crops. Prerequisite: Agronomy 8, Horticulture 13. Either semester; hours and credit to be arranged; Professor COOK, 4 M.

13. Summer Practice. (1 Hr.) One hour credit will be given for satisfactory reports, made in prescribed form, upon summer work done upon an approved general farm.

ANIMAL HUSBANDRY.

Professor SHEETS, Mr. HUNT, Mr. ————.

***1. Breeds of Live Stock.** (3 Hrs.) Elective. The purpose of this course is to give the student a thorough knowledge of the leading breeds of cattle, horses, sheep and swine, and the origin, history and adaptability of the different breeds. The student will spend considerable time studying representative specimens of the various breeds until he is not only familiar with the points of excellence of each breed but can select superior individuals.

First semester; M. W. F., 9:00; S. 9:00-12:00; 7 M.

5. Advanced Animal Husbandry. (3 Hrs.) Elective. Advanced work in nutrition, breeding, judging and animal production will be

arranged to suit the needs of the student. Lectures, research problems and quizzes.

Second semester; hours to be arranged; 7 M.

10.x Advanced Stock Judging. (3 Hrs.) Elective. Practical applications of the principles and standards governing the judging of live stock with reference to market and show yard requirements. Students taking this course will be required to participate in a tour of inspection of representative herds, flocks and studs. Prerequisites: Animal Husbandry 1 and 2.

First semester; hours to be arranged.

***11.x Genetics.** (3 Hrs.) Required of seniors whose major is in animal or dairy husbandry. Variation, its extent and causes; relative stability and instability of matter; reflex action, habit and instinct as bearing upon the question of inheritance of acquired characters; the origin, correlation and disappearance of characters; transmission and the laws of heredity as developed by the statistical method of study; power of selection to modify type. Prerequisites: Animal Husbandry 14 and 8 hours in zoology.

First semester; M., W., F., 8:00; Professor SHEETS, 7 M.

12. Thesis. (1 or 2 Hrs.) First or second semesters. Hours to be arranged.

13. Market Classes. (2 Hrs.) Required of freshmen. A study of the market classes and grades of cattle, horses, sheep and swine. The use of the score card, comparative judging, location of the exterior parts of the different kinds of live stock, breed identification and types of farm animals.

First semester; M., 10:00 and 2:00; 7 M. Also given in the Summer School.

***14. Animal Breeding and Feeding.** (3 Hrs.) Required of sophomores. (a) Breeding: Evolution of domestic animals; history of their systematic breeding and improvement; unit characters; the range of variability; the effects of grading and crossing, and systems of breeding. (b) Feeding: The classification, digestibility and functions of food nutrients, market grades and food values of feeding stuffs, feeding standards and calculation of balanced rations for farm animals.

First semester; M. W. F., 8:00; 7 M. Also given in Summer School, 1915.

15. Animal Husbandry Seminar. (1 Hr.) Will meet once every two weeks for both semesters. Elective for juniors and required of seniors whose major is animal husbandry or dairy husbandry. Papers will be prepared and read by the members. Students doing

thesis work will report upon their work. One hour credit for two semesters' work.

First and second semesters; M., 2:00; 7 M.

16. Advanced Live Stock Production. (5 Hrs.) Elective. Breeding and management of pure bred herds, flocks and studs; breeding for market; economic factors in feeding; influence of age, grade, breed, condition and sex; equipment; byproducts. Lectures, quizzes and assigned readings. Prerequisite: Animal Husbandry 14.

Second semester; M., T., W., Th., F., 11:00; Professor SHEETS, 7 M.

17. Herd and Flock Book Study. (2 Hrs.) Elective. A critical study of the most noted flocks and herds at home and abroad with a view to becoming acquainted with the pedigrees of the leading strains and families of the different breeds of live stock. Prerequisites: Animal husbandry 14 and 10.

Second semester; Hours to be arranged; 7 M.

18. Summer Practice. (1 Hr.) One hour credit will be given for satisfactory reports, made in prescribed form, upon summer work done upon an approved live stock farm.

4. Animal Nutrition. (3 Hrs.) Elective. A study of the composition and fuel value of feeding stuffs; organic and inorganic food stuffs; digestion, absorption and metabolism of the food nutrients by farm animals; elimination of metabolic products from the animal body; coefficients of digestibility and nutritive value of feeding stuffs. Prerequisite: Animal Husbandry 14, and Organic Chemistry 3.

First semester; M. W. F., 11:00; 7 M.

DAIRY HUSBANDRY.

Associate Professor BENNETCH.

1. Farm Dairying. (3 Hrs.) Required of sophomores. A general study of the secretion, composition, care and handling of milk; a study of cream ripening and churning; use of the Babcock tester and testing of cows with special reference to adaptation to farm conditions.

Second semester; T. Th., 11:00; Th. 2:00; 6 M.

2. Testing Dairy Products. (2 Hrs.) Elective. A study of the commercial tests for butter-fat, moisture and acid in dairy products, including the use of the lactometer and modern acid tests. Prerequisite: Dairy 1.

First semester: T. 10:00 and 2:00; 6 M.

3. Milk Production. (4 Hrs.) Elective. A study of milk production, covering the care, handling, feeding and breeding of dairy cattle, the calculation of rations and actual practice in feeding. Special attention is given to keeping herd records, test associations, and organized methods for improving the quality of dairy cattle. Prerequisite: Dairy 1 and 2.

First semester; M. W. F., 8:00; W. 2:00; 6 M.

4 Pure-bred Dairy Cattle. (2 Hrs.) Elective. A study of each of the improved dairy breeds, with special reference to families and pedigrees; a study of breeding problems and methods used for improving each breed, especially systems of advanced registry testing for official records. Prerequisites: Dairy 1 and Animal Husbandry 1.

Second semester; T. Th., 10:00; 6 M.

5. Dairy Cattle Judging. (2 Hrs.) Elective. A study of the types and characteristics of dairy cattle, with practice in scoring and judging groups of animals both for production and exhibition. Prerequisite: Animal Husbandry 13.

Second semester; S., 8:00-12:00; 6 M.

6. Dairy Buildings and Equipment. (2 Hrs.) Elective. This course includes a study of various plans for the construction of dairy buildings, covering the general principles involved, the drawing of plans for the construction of barns, storage houses, silos, milk-rooms, and shelters; also plans for the improvement of old buildings and the planning and laying out of dairy plants for special purposes. Prerequisite: Dairy 1, Engineering 23.

Second semester; F., 10:00; laboratory hours to be arranged; 6 M.

7. Market Milk. (2 Hrs.) Elective. A study of the production, handling and marketing of cream and modified, certified and condensed milk. Prerequisite: Dairy 1.

Second semester; T. Th., 8:00; 6 M.

8. Thesis. (1 or 2 Hrs.) First and second semesters; hours to be arranged.

9. Summer Practice. (1 Hr.) One hour credit will be given for satisfactory reports, made in prescribed form, upon summer work done on an approved dairy farm.

ENTOMOLOGY.

Associate Professor PEAIRS.

***1. General Entomology.** (4 Hrs.) A study of the external structures, classification, habits, and local distribution of insects and their near relatives. Lectures and text-book. Laboratory and field work in collecting and mounting the more common local insects, the classification of the insects collected, the study, aided by dissections and drawings, of the external anatomy of various types. Text: Comstock's Manual for the Study of Insects.

First semester; M. W. F., 11:00; Th., 2:00; A.

Also given in the Summer School.

***2. Economic Entomology.** (3 Hrs.) Required of juniors whose major is horticulture. A consideration of insects in their relation to farm products, more particularly horticultural products. Life histories and habits of injurious and beneficial species. General and special methods of insect control. Collection and identification of injurious forms and their work. Practice in the application of control measures. Prerequisite: Entomology 1.

Second semester; T. Th., 11:00; Th. 2:00; A.

3. Advanced General Entomology. (3 Hrs.) Elective. Origin and development of insects; special structures, coloration, adaptations structural and otherwise, internal anatomy. Lectures, assigned reference work and laboratory. Prerequisites: Entomology 1, Zoology 1.

First semester; hours to be arranged; A.

4. Systematic Entomology. (Credit in proportion to work done, not to exceed 3 hours per semester). A continuation of the work in classification begun in Course 1. Detailed studies of certain groups. Largely individual laboratory and field work. Prerequisite: Entomology 1.

Either semester or Summer School; hours to be arranged; A.

5. Advanced Entomology. (Credit in proportion to work done, not to exceed 3 hours per semester.) For students wishing to make entomology their major. Prerequisite: Entomology 1 and 3.

Either semester or Summer School; hours to be arranged.

6. Insects and Disease. (1 Hr.) Lectures on the more common insects known to be, or suspected of being, responsible for the transmission of diseases of man and the higher animals. Assigned reference work. Prerequisite: Entomology 1.

Second semester; hours to be arranged.

8. Thesis. (1 or 2 Hrs.) First and second semesters; hours to be arranged.

FARM MANAGEMENT.

Associate Professor O. M. JOHNSON.

***1. Farm Management.** (3 Hrs.) Required of juniors. Lectures upon choosing, equipping and operating a farm; types of farming; rental systems; farm labor; cost of production; successful marketing; farm records and accounts; different phases of specialized and general farming; rotations; fencing and buildings; management of manure and fertilizers; preparation of plans for the organization and management of specific farms. Prerequisite: Agronomy 2, Soils 1.

Second semester; M. W. F., 11:00.

****2. Rural Economics.** (3 Hrs.) Required of seniors. The study of economics as related to all phases of rural life. Prerequisite: Economics 1.

Second semester; M. W. F., 9:00.

3. Advanced Farm Management. (3 Hrs.) Elective. A continuation of Farm Management in the further study of farm operations and cost of production. Prerequisite: Farm Management 1.

Second semester; hours to be arranged.

4. History of Agriculture. (3 Hrs.) Elective. The history of agriculture beginning with ancient references and tracing it through all the stages of its development. A study of early agricultural experiment stations and their work will be taken up, as well as a study of our own experiment station and the United States Department of Agriculture, and their work in recent years.

Second semester; hours to be arranged.

5†. Field Work. (Credit in proportion to work done). Prerequisite: Farm Management 1.

Summer School; hours to be arranged.

6. Thesis. (1 or 2 Hrs.) Both semesters; hours to be arranged.

7. Marketing Agricultural Products. (2 Hrs.) Elective. A study of produce exchanges, methods of transportation, and municipal markets. Attention will be given to cooperation as a means for better marketing. Prerequisite: Economics 2.

Second semester; hours to be arranged.

FARM OPERATIONS.

Committee: Professors ALDERMAN, BENNETCH and COOK.

Farm Operations. (No credit.) Required of all students entering the College of Agriculture. In event of their failure to pass the examination in farm operations by the beginning of their second year, students will be required to work one summer on the University farm, or for the same period on some farm approved by the committee in charge. Weekly reports of the farm operations will be required and a final examination given at the beginning of the third year. In case of continued failure the student's degree shall be withheld until he shall satisfy the requirements of the committee in charge. The examination will test the student's knowledge of every-day farm operations, such as feeding and care of live stock, familiarity with agricultural implements and their uses, knowledge of field and orchard crops, fertilizers, cultural methods and allied subjects. Opportunity will be given for a demonstration of the student's ability to do practical farm work, such as harnessing a team, driving, plowing, milking and other operations. Previous experience in specialized farming, such as market-gardening, nursery work, bee keeping, poultry raising, etc., will be considered and proper credit given the student.

HORTICULTURE.

Professor ALDERMAN, Associate Professor DACY, Mr. AUCHTER, Mr. SUTTON and Mr. JEFFRIES.

***2. Elementary Pomology.** (3 Hrs.) Required of sophomores. A general course covering the propagation of our common fruits and the planting and management of orchards up to bearing age. A study of seeds, cuttings, layerage, grafting, budding and nursery management, planting, intercrops, fertilizing, pruning and spraying the young orchard.

First semester; T., Th., 10:00; T., 2:00; Mr. AUCHTER, H.

Also given in the Summer School in alternate years.

***3. Elementary Vegetable Gardening.** (3 Hrs.) Required of freshmen. Propagation by means of seeds, bulbs, tubers, etc. Planning and care of the home vegetable garden; construction and management of hot beds and cold frames; garden soils and their treatment; cultivation; fertilizers and manures; varieties of vegetables. Each student will be required to plan, plant and care for a garden 20x40 feet in area.

Second semester; T., Th., 10:00; T., 2:00; Associate Professor DACY, H.

Also given in the Summer School in alternate years.

4. Systematic Pomology. (3 Hrs.) Elective. Lectures, reference reading and recitations. The history, botany and classification of apples, pears, peaches, plums, cherries, grapes, and a few miscellaneous fruits and their adaptation to West Virginia conditions. Students will be given practical training in judging and scoring fruit exhibits and will have entire charge of the annual fruit show held at the College. Prerequisite: Horticulture 2.

First semester; T., Th., 9:00; T., 2:00; Professor ALDERMAN and Mr. AUCHTER, H.

5. Small Fruits. (3 Hrs.) Elective. Lectures, recitations and discussions covering care and management of small fruit plantations, varieties and their adaptation to West Virginia soils and climate, including packing and marketing. Laboratory work on planting, pruning, training and caring for small fruits. Frequent trips will be made to the Experiment Station farm to study the experimental plats and varieties under test there. Prerequisites: Horticulture 2 and 3.

Second semester; T., Th., 9:00; W., 2:00; Mr. SUTTON, H.

6. Greenhouse Construction. (2 Hrs.) Elective. Lectures and discussions upon modern greenhouse construction. Heating, ventilation, and adaption of various types of houses to special crops and conditions. Laboratory work in drafting, designing and erecting greenhouses.

First semester; M., 10:00, and 2:00; Associate Professor DACY, H.

7. Commercial Fruit Growing. (4 Hrs.) Elective. An advanced course covering the study of the proper management of commercial orchards in West Virginia. The lectures, recitations and reference readings will consider the cultural methods, fertilization, pruning, spraying, orchard heating, orchard rejuvenation, fruit by-products, harvesting, marketing, and storing of fruit, transportation, coöperative associations, general and special markets, costs of production. Laboratory work in pruning, spraying, orchard heating, orchard surgery, visits to local markets, and storage plants, grading and packing of fruits. Prerequisite: Horticulture 2.

First semester; M., W., F., 10:00; F., 2:00; Mr. AUCHTER, H.

8. Commercial Vegetable Gardening. (4 Hrs.) Elective. Designed for students who wish to take up practical market gardening work. Geography of truck and market gardening; a study of the management of commercial enterprises; growing of special crops on a large scale; systems of cropping, packing, storing and marketing vegetables. Laboratory exercises include practical work in

University market garden and visits to some large markets and commercial plants. Prerequisite: Horticulture 3.

Second semester; M., W., F., 8:00; F., 2:00; Associate Professor DACY, H.

9. Advanced Practical Pomology. (1 Hr.) A trip occupying one week's time will be made through the fruit regions of Eastern West Virginia, Virginia, Maryland and Pennsylvania, with probably a short visit at the Department of Agriculture, Washington, D. C. As many orchards as possible will be visited and a detailed report will be required. The cost of this trip will not exceed thirty dollars. Prerequisite: Horticulture 2.

First semester; Professor ALDERMAN, H.

10. Horticultural Seminar. (1 Hr.) For two semesters' work. Required of seniors and graduate students in horticulture. Papers will be prepared and read by the members of the class upon subjects pertaining to their research or thesis work or upon special problems.

First and second semesters; M., alternate weeks, 2:00; Professor ALDERMAN and assistants, H.

11. Thesis. (1 or 2 Hrs.) Students should arrange their problem before the close of their junior year so that materials may be on hand and no delay necessary the following year.

First and second semester; hours to be arranged; Professor ALDERMAN, H.

12. Horticultural Research. (1 or 2 Hrs. a semester.) Open to juniors and seniors specializing in horticulture. Original problems will be investigated by the student and a detailed report of the work done will be submitted.

First and second semester; hours to be arranged; Professor ALDERMAN, H.

13. Plant Breeding. (3 Hrs.) Required of seniors specializing in horticulture. A consideration of the principles of variation and heredity, together with theories of evolution and their practical application to problems of plant breeding; practical work in hybridizing, note-taking and selection at the station farm and in the greenhouse; special attention is given to problem work in biometry. Prerequisites: Botany 1 and 2, Entomology 1.

First semester; M., W., F., 11:00; Professor ALDERMAN and Mr. AUCHTER, H.

14. Landscape Gardening. (3 Hrs.) Elective An elementary course in ornamental and landscape gardening, with special reference

to the beautifying of the home grounds. Prerequisite: Horticulture 2 and 3.

Second semester; T. Th., 8:00; laboratory hours to be arranged; H.

15. Greenhouse Management. (3 Hrs.) Elective. A study of the principal flower, fruit and vegetable crops that are grown under glass, and the principles underlying their successful management. Laboratory exercises will include practical work in the college greenhouses, in seed-sowing, making cuttings, potting, transplanting, sterilizing soil, fumigation, watering, ventilating, care of boiler, etc.

First semester; T., Th., S., 8:00; Associate Professor DACY, H.

16. Advanced Fruit Judging. (1 Hr.) A course in fruit judging designed to train men for fruit judging teams and practical judging.

First semester; hours to be arranged; Professor ALDERMAN and Mr. AUCHTER, H.

17. Summer Practice. (1 Hr.) Open to juniors and seniors. One hour credit will be given for satisfactory reports made by students who spend the summer upon an approved fruit or truck farm.

POULTRY HUSBANDRY.

Assistant Professor ANDREWS.

1. Poultry Buildings and Feeding. (3 Hrs.) Elective. Lectures on poultry house construction, including location and types of houses; poultry appliances; feeds and feeding. Laboratory practice in poultry house construction; making appliances; preparation of feeds.

First semester; T. Th., 10:00 T. 2:00; 7 M.

2. Poultry Management. (2 Hrs.) Elective. A continuation of course 1. Lectuers on the general care of the flock; breeding for egg and for meat production; incubation, brooding and rearing; diseases. Practice in feeding, operating incubators and brooders; the rearing of chicks; poultry anatomy.

Second semester; T. Th., 9:00; Th., 2:00; 6 M.

4. Marketing and Judging. (3 Hrs.) Elective. Lectures on marketing, including methods of marketing poultry products, fattening, dressing, and packing poultry, candling and grading eggs, followed by lectures on breeds and judging. Practice in caponizing, fattening, killing, dressing and packing poultry; candling, grading and marketing eggs; followed by a study of the most important breeds; judging fowls. Prerequisite: Poultry Husbandry 1 and 2.

First semester: T. Th., 9:00; M., 2:00, 6 M.

5. Poultry Farm Management. (3 Hrs.) Elective. Lectures on the various types of poultry farming, choice of farm, its equipment, and operation; adaptability of poultry farming to other types of farming; how to get a start, kind of stock to keep and general methods of management. Practice in cost accounting, inspection of poultry farms and farms especially suited to poultry raising, working out plans for a model poultry farm, its buildings, equipment and management. Prerequisites: Poultry Husbandry 1, 2, 3.

Second semester; T. Th., 11:00; W., 2:00, 6 M.

SOILS.

Professor BEAR.

***1. Soil Physics and Chemistry.** (4 Hrs.) Required of sophomores. Lectures and quizzes on physical and chemical properties of soils in relation to their crop producing power; quantitative laboratory work with reference to moisture and pore space in soils; mechanical analysis of soils; making up and practice work with standard solutions; analysis of a limestone; determination of lime requirement of soils. Prerequisite: Inorganic Chemistry 1 and 2 and Geology 1.

Second semester; M. W. F., 8:00; F., 2:00, 27 M.

Also given in the Summer School, 1915.

2. Soil Chemistry and Bacteriology. (4 Hrs.) Lectures and quiz on chemical and biological properties of soils in relation to their crop producing power; quantitative laboratory work on organic matter in soils; analysis of commercial fertilizers; determining the number and coefficient of fermentation of bacteria in soils. Prerequisite: Bacteriology 10 and Soils 1.

First semester; M. W. F., 11:00; W. 2.00, 27 M.

3. Advanced Soil Chemistry. (3 Hrs.) Lecture, quiz and laboratory work. A complete inorganic analysis of a soil for all the elements contained in it; determination of humus compounds; colorometric determinations of nitrates, nitrites and ammonia in soils. Prerequisite: Soils 1 and 2, Organic Chemistry 3. Not given in 1914-15.

First semester.

4. Advanced Soil Bacteriology. (3 Hrs.) Elective. Lecture, quiz and laboratory work. Isolating and working with pure cultures of nitrate, nitrite, ammonifying, azotabacter and legume bacteria in soils. Prerequisite: Soils 1 and 2, Organic Chemistry 3. Not given in 1914-15.

Second semester.

VETERINARY SCIENCE.

Assistant Professor LUEDER.

1. Anatomy and Physiology. (3 Hrs.) Elective. Required of students whose major is animal husbandry. A systematic description of the bones, muscles, viscera, vascular, lymphatic and respiratory systems. The structure of the ox, sheep, and pig, as contrasted and compared with that of the horse. The functions of the various organs and tissues of the body, the chemical constitution and physical laws which effect its growth, reproduction and development.

Second semester; T. Th., 9:00; laboratory, Th., 2:00, 6 M.

2. Diseases of Farm Animals and Materia Medica. (3 Hrs.) Elective. Required of students whose major is animal husbandry. A study of the important diseases of all domestic animals, methods of treatment and drugs for their cure. Prerequisite: Veterinary Science 1.

Second semester; T. Th., 10:00; Th., 2:00, 6 M.

3. Clinic. (1 Hr.) Elective Clinical work, giving the student a practical knowledge of handling and studying all kinds of diseased animals in the hospital; practical work in this course accompanies Veterinary Science 1 and 2.

Second semester; hours to be arranged, 6 M.

4. The Horse. (2 Hrs.) Elective. A study of the most successful methods of handling stallions, jacks and brood mares, care of the foal, growing and developing young horses for market, and the mechanics of the horse. Prerequisites: Animal Husbandry 1, 2 and 14.

Second semester; F., 11:00; 2:00, 6 M.

5. Parasites of Farm Animals. (2 Hrs.) Elective. Lectures, text book study embracing the classification, life history and identification of the parasites of domestic animals. Special attention is given to the prevention of infection, symptoms and treatment of the animals. Laboratory work will be given, collecting and studying the life history and methods of control of the important parasites affecting farm animals. Prerequisites. Entomology or Zoology 1, and Veterinary Science 1.

Second semester; M., 10:00 and 2:00, 6 M.

THE WINTER SHORT COURSES

January 5th to March 12, 1915.

Purpose. The Winter Short Courses in Agriculture are arranged to meet the needs of those men who desire to study the best farm methods during ten weeks of the winter months. The courses are devoted entirely to practical agriculture and aim to give the student a thorough knowledge of the latest scientific discoveries and most improved and practical methods of farm operations.

Admission. There are no entrance requirements or examinations, but to pursue the work to advantage, students should be at least sixteen years of age and have had a common school education. Experience has shown that young men from twenty to thirty years of age who have had experience in farming can get the greatest benefit from the course, but older farmers have found the work equally valuable to them. Orchard managers and farm foremen are taking the course, knowing that by so doing they will be enabled to increase their earning power, and owners are frequently sending their managers, feeling that it will be a profitable investment.

Plan. Students are urged to take the course in general agriculture the first winter and to then specialize in horticulture, dairying, or animal husbandry the second year; but either of these courses may be taken if a student does not expect to be able to return. Winter course students are not required to take military drill. An outline of the different courses will be found below.

Certificate. Upon completing the work of two winter terms a Winter Short Course certificate is given, signed by the President of the University and the Dean of the College of Agriculture.

FEES AND EXPENSES.

A general fee of $5.00 per term is charged each short course student. There are no other fees.

Board may be had at private residences or boarding houses at $3.00 to $4.50 per week, and rooms at $1.00 to $1.50 per week. The Secretary of the Young Men's Christian Association has lists of available rooms and will direct new students to them.

Estimated Expenses for Winter Term.

Room Rent	$10.00	to	$15.00
Board	30.00	to	75.00
Washing	3.00	to	5.00
Text Books	3.00	to	5.00
Fees	5.00	to	5.00

Students entering the Short Course should register at the Register's Office, Woodburn Hall, promptly on January 5, and then arrange their work with the Dean, second floor, Agricultural Hall.

WINTER SHORT COURSE CURRICULA.

First Year in General Agriculture.

Farm crops (Agronomy A)	3	2
Live stock management and stock judging (Animal husbandry B)	2	1
Farm mechanics (Agronomy E)	2	1
Plant propagation (Horticulture A)	2	2
Soil fertility (Soils A)	3	1
or		
Farm management and accounts (Farm Management A)		
	13	6

Second Year in Horticulture.

Orchard management (Horticulture C)	5	2
Vegetables and small fruits (Horticulture B)	4	1
Insect pests (Entomology B)	2	1
Plant diseases (Botany)	2	1
Plant fertility (Soils A)	3	1
or		
Farm management and accounts (Farm Management A)		
	16	6

Second Year in Dairy Husbandry.

Farm dairying (Dairying A)	3	1
Live stock judging (Animal Husbandry E)		2
Dairy cattle management (Dairying C)	3	1
Dairy cattle judging (Dairying B)		1
Market classes and breeds of live stock (Animal husbandry A)	2	
Veterinary science A	3	1
Soil fertility (Soils A)	3	1
or		
Farm management and accounts (Farm Management A)		
	14	4

Second Year in Animal Husbandry.

Live stock production (Animal husbandry C)	5	
Market classes and breeds of live stock (Animal husbandry A)	2	
Veterinary science A	3	1
Soil fertility (Soils A)	3	1
or		
Farm management and accounts (Farm Management A)		
	14	4

Second Year in Poultry Husbandry

Care and feeding of poultry (Poultry husb. A)	5	2
Poultry farm management (Poultry B)	3	
Poultry judging (Poultry C)		2
Poultry buildings and equipment (Poultry D)	2	
Soil fertility (Soils A)		
Farm management and accounts (Farm Management A)	3	1
	13	5

THE FARMERS' WEEK

January 4 to 9, 1915.

The Farmers' Week consists of popular lectures, demonstrations, and exercises planned for the benefit of various classes of farmers. The faculty are assisted by men who have been unusually successful, and who are known as experts in the particular line in which they give instruction. The detailed work given is changed from year to year.

In order to meet the needs of as large a number of persons as possible, lectures on the following subjects will be given:—General agriculture, Dairying, Horticulture and Poultry husbandry. The work consists of practical and scientific lectures and practice work in the laboratory or barn, or on the University Farm. The instructional work is given by the regular teachers of the College of Agriculture and by practical agricultural experts who are familiar with our farm problems. A valuable feature is the series of evening meetings where addresses will be made by some of the most prominent speakers of West Virginia and other states.

The Farmers' Week is open to everyone over sixteen years of age. The work is designed for men of middle age as well as for the young farmer. There are no entrance examinations.

Expenses. No fees will be charged those attending Farmers' Week. No text-books will be required, though some may be used to advantage for reference. Board and room may be secured at $5.00 to $6.00 per week. The total expense of the course, exclusive of railroad fare, need not exceed $12.00.

The course for 1915 will be held from Monday, January 4 to Saturday, January 9. Detailed announcements may be obtained upon application to the Director of Agricultural Extension, Morgantown, W. Va.

THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION

The Experiment Station is a distinct and separate department of the University, and was established by the Board of Regents in 1887, by authority of an act of Congress known as the Hatch Act, which was passed on the 2nd day of March of that year. Further support was given by an act of Congress known as the Adams act, approved June 30, 1906. From the appropriations made by the Congress under these acts the Station derives an annual income of thirty thousand dollars. Section 2 of the aforesaid act fully states the object and purposes of the Experiment Station as follows:

"That it shall be the object and duty of said experiment station to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaption and value of grasses and forage plants; the composition and digestibility of the different kinds of foods for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches and experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

The State Legislature has charged the Station with the duty of enforcing the law for the control of commercial fertilizers, and has made appropriations for horticultural, live stock, tobacco and poultry investigations and printing, aggregating nine thousand dollars for the current fiscal year.

Bulletins and annual reports setting forth results of experiments and investigations conducted at the station are published for gratuitous distribution, and will be mailed to any citizen of the state applying for them.

The Experiment Station is engaged solely in research and investigation, the results of which, with those of similar institutions, form the basis of the teaching of the College and the Extension Department.

AGRICULTURAL EXTENSION DEPARTMENT

The principal value of the Agricultural College as a teaching factor, is the training it gives young people who take its courses in residence. The Agricultural Experiment Station, as an adjunct to the College, has an important field in discovering new truth pertaining to agriculture. If the work were thus limited, only a small percent of the people of the state would receive direct and practical benefit from the work of the College. The same economic principle that justifies the expenditure of money for educating those who are able to attend the classes at the College, also justifies the expenditure of money in taking instruction from the College to those who are not able to come to it.

For this purpose the agricultural extension department was established by the University in 1907. Further support was given by an act of the State Legislature in 1913, legally establishing and defining the work of the Department. This law is, in part (Part of Sec. 172, Chapter 71, Acts of 1913.), as follows:—

"That, in order to promote the improvement and advancement of agriculture, domestic science and rural life among the people of the several counties of the State of West Virginia, there be and is hereby created and established in the college of agriculture, at West Virginia University, an agricultural extension department to be co-ordinate with the department of instruction and the agricultural experiment station.

"The work of the agricultural extension department of the college of agriculture shall be conducted under such rules, regulations and methods as may be prescribed by the state board of control, and said work shall consist of holding extension schools in the various counties of the state, at which instruction shall be given in soil fertility, horticulture, stock raising, crop production, dairying, domestic science and kindred subjects; of conducting farmers' institutes; of giving demonstrations in orcharding, soil improvement and crop production; of furnishing speakers and exhibits for special agricultural trains; of giving instruction and demonstrations at agricultural fairs, farmer's institutes, clubs, granges, or any other organizations that may be useful in extending agricultural knowledge; of conducting, in co-operation with the United States Department of Agriculture, boys' and girls' agricultural clubs; of recommending county agricultural agents and of supervising and assisting them in advancing the agricultural interests of their respective counties; of giving instruction in agriculture and domestic science by mail and by newspaper articles; and of such other methods as may

carry the benefits of the work of the colleges of agriculture, the agricultural experiment stations, and the United States Department of Agriculture to the people of the several counties of the state; and all such itinerant educational work in agriculture and home economics carried on under appropriations made by or to this state shall be under the control or supervision of said agricultural extension department."

Forms of Work.

The following forms of work are now conducted in the various sections of the state:

1. Agricultural schools and schools of home economics, held for one week at a suitable center in each county.

2. Farmers' institutes wherever they may be of service to the farmers and their families.

3. Demonstrations in pruning fruit trees, spraying fruit trees, thinning fruit, packing fruit, mixing commercial fertilizer, corn variety tests, growing of legumes and the keeping of farm and household records and accounts.

4. The encouragement of the teaching of agriculture in the public schools by:

(a) Supervision of the agricultural courses of study, instructional work at teachers' institutes, round table meetings, conferences of county and district teachers, and special lectures at granges, clubs, and other organizations interested in the teaching of agriculture in the public schools. (This work is in coöperation with the State Department of Free Schools at Charleston).

(b) Organizing boys' and girls' clubs for growing and judging corn, potatoes, growing and canning vegetables, etc. (This work is in coöperation with the U. S. Department of Agriculture.

(c) A monthly bulletin on elementary agriculture for school teachers.

5. Agricultural railway trains with lectures and exhibits on horticulture, soils, farm crops and market gardening.

6. Educational exhibits at state and county fairs.

7. Farmers' reading circle courses.

8. Publications:
   West Virginia Farm Bulletin.
   Boys' and Girls' Agricultural Club Circulars.
   Agricultural press service
   West Virginia School Agriculture.

9. Supervision of the county agricultural agents and demonstrators.

(This work is in coöperation with the Farmers' Coöperative Demonstration Work, U. S. Department of Agriculture.)

10. Correspondence: This includes the identification of plants and insects, inquiries covering agricultural problems, and assistance to the school, the home or other organizations in advancing movements to increase the worth and dignity of a rural life.

For further information concerning the work of this department, address Director C. R. Titlow for a special bulletin.

THE COLLEGE OF LAW

THE FACULTY

THOMAS EDWARD HODGES, LL.D., *President.*

*HENRY CRAIG JONES, A.B., LL.B., *Dean and Professor of Law.*

GEORGE FITCH WELLS, LL.B., LL.D., *Acting Dean and Professor of Law.*

WILLIAM P. WILLEY, A.M., *Professor of Law, Emeritus.*

JAMES RUSSELL TROTTER, A.M., LL.B., *Professor of Law.*

OLIVER LEROY McCASKILL, PH.B., J.D., *Associate Professor of Law.*

THOMAS PORTER HARDMAN, B.A. in JUR. (Oxford), *Assistant Professor of Law.*

CHARLES EDMUND NEIL, A.M., *Professor of Public Speaking.*

IRA E. ROBINSON, *Judge Supreme Court of Appeals, Special Lecturer.*

**ROY OLNEY HALL, LL.M., *Instructor in Law.*

KATHERINE CLIFTON HEDRICK, *Assistant Law Librarian.*

AJAX TELEMON SMITH, *Assistant Law Librarian.*

HISTORY

The College of Law was established in 1878. Since then the growth of this department has kept pace with that of the University, of which it is a part, and its attendance is now comparatively large. The College occupies four commodious lecture rooms, a reading room, and a library, to which students have free access.

LAW LIBRARY

The Law Library now contains about six thousand volumes of well selected books. These consist of the United States Supreme Court Reports, reports of the states of West Virginia, Virginia, Massachusetts, New York, and Pennsylvania complete, and of all

*Assumes his duties July 1, 1914.
**For the year 1913-14.

the other states to the Reporter System except Maine, Rhode Island, New Hampshire, Delaware, and South Carolina. The Law Library also contains the complete Reporter System, the Century, Decennial and Key Number Digests, English Reports Reprint, Mews' Digest, the American Decisions, American Reports, Lawyers' Reports Annotated, both series, American and English Annotated Cases, Corporation Reports Annotated, American Probate Reports, and a large collection of standard legal periodicals and well selected text-books. It is in charge of competent librarians, and is open to the use of students of the University from eight a. m. until five p. m., and from seven p. m. until 9 p. m.

Arrangements have been made whereby the use of this library is extended to the lawyers of the state by the payment of a small annual fee, the proceeds thus derived to be expended in the purchase of law books, as the property of the University.

ADMISSION

The requirements for admission to the College of Law, as a candidate for the Bachelor's degree in Law, are: fifteen units of preparatory work and in addition not less than thirty-two hours' credit for work in the College of Arts and Sciences, or its equivalent. The college credits secured must include six hours of English (English 1 and 2), three hours of economics, and six hours of history

Admission as Special Students. Persons desiring to enter the College of Law as special students must conform to the regulations of the University concerning special students.

ADMISSION TO ADVANCED STANDING

Applicants for admission to advanced standing must satisfy the following requirements.

1. Compliance with the requirements for admission to the first year class.

2. For admission to the second year class, applicants must have successfully pursued the study of law for at least one year in an approved law school, where they have received credit for courses equivalent to those required for admission to the second year class in the College of Law.

3. For admission to the third year class, applicants must have successfully pursued the study of law for at least two years in an approved law school where they have received credit for courses equivalent to those required for admission to the third year class in the College of Law.

No credit will be given for work done in a law office.

No student may receive the degree of Bachelor of Laws without at least one year's residence in the University and the successful passing of courses aggregating thirty (30) semester hours pursued in the College of Law.

Any applicant for advanced standing may also, in the discretion of the law faculty, be required to undergo an examination in any or all of the subjects presented for advanced standing.

CREDIT FOR LAW IN THE A.B. COURSES.

Candidates for the degree of Bachelor of Arts who declare their intention to become candidates for the degree of Bachelor of Laws are permitted to count eighteen hours of law as part of their elective work for the former degree. The work thus taken in the College of Law must be selected from the work of the first year of that college, and can only be taken during the senior year in the College of Arts and Sciences.

DEGREES.

Bachelor of Laws

Candidates for the degree of Bachelor of Laws, in addition to the preparatory and college work required for entrance to the College of Law, must complete at least eighty-six hours of work as indicated in the curriculum below.

The eighty-six hours of work shall consist of four hours of Public Speaking (Public Speaking 66 and 67) and eighty-two hours in law; except that such students as may be required to take military science after enrollment in the College of Law may be permitted to substitute one year's work in military science for two hours of law.

This requirement does not apply to the present senior class in the College of Law.

COURSES OF INSTRUCTION

FIRST YEAR

First Semester

Common Law Pleading I. (2 Hrs.) Whittier's Cases on Common Law Pleading. Associate Professor McCaskill.

Contracts I. (3 Hrs.) Willison's Cases on Contracts and text-book readings. Professor Wells.

Criminal Law and Procedure I. (2 Hrs.) Book to be announced. Professor Trotter.

Introduction to the Study of Law. A short course of lectures preliminary to the course in Torts. Dean Jones.

Property I. (4 Hrs.) Gray's Cases on Property, volumes 1 and 2, second edition. Professor WELLS.

Torts I. (3 Hrs.) Ames' and Smith's Cases on Torts, edition 1909-10. Dean JONES.

Second Semester

Agency. (4 Hrs.) Wambaugh's Cases on Agency. Assistant Professor HARDMAN.

Common Law Pleading II. (2 Hrs.) Whittier's Cases on Common Law Pleading. Associate Professor MCCASKILL.

Contracts II. (3 Hrs.) Williston's Cases on Contracts and textbook readings. Professor WELLS.

Criminal Law and Procedure II. (2 Hrs.) Book to be announced. Professor TROTTER.

Torts II. (3 Hrs.) Ames' and Smith's Cases on Torts, edition 1909-10. Dean JONES.

SECOND YEAR

First Semester

Equity I. (4 Hrs.) Ames' Cases on Equity Jurisdoction, volume 1. Assistant Professor HARDMAN.

Evidence I. (2 Hrs.) Casebook to be announced. Dean JONES.

Negotiable Instruments. (3 Hrs.) One semester. (Omitted in 1914-15).

Sales I. (2 Hrs.) Book to be announced. Professor TROTTER.

The second year class will also take Property I and Common Law Pleading I with the first year class in 1914-15.

Second Semester

Equity II. (2 Hrs.) Ames' Cases on Equity Jurisdiction, volume 2. Assistant Professor HARDMAN.

Equity Pleading. (2 Hrs.) Book to be announced. Associate Professor MCCASKILL.

Evidence II. (2 Hrs.) Casebook to be announced. Dean JONES.

Property II. (2 Hrs.) Gray's Cases on Property, volume 3, second edition. Professor WELLS.

Sales II. (2 Hrs.) Book to be announced. Professor TROTTER.

Wills and Administration. (2 Hrs.) Book to be announced. Professor TROTTER.

The second year class will also take Common Law Pleading II with the first year class in 1914-15.

THIRD YEAR

First Semester

Conflict of Laws I. (2 Hrs.) Casebook to be announced. Assistant Professor HARDMAN.

Constitutional Law I. (2 Hrs.) Casebook to be announced. Dean JONES.

Partnership I. (2 Hrs.) Book to be announced. Professor TROTTER.

Practice Court and Procedure I. (4 Hrs.) Associate Professor MCCASKILL.

Private Corporations I. (2 Hrs.) (Omitted in 1914-15.)

Property III. (2 Hrs.) Gray's Cases on Property, volume 5, second edition. Professor WELLS. (Omitted in 1914-15.)

Public Speaking 66. (2 Hrs.) Professor NEIL.

Damages. (2 Hrs.) Beale's Cases on Damages, second edition, Professor TROTTER.

Drafting of Legal Instruments. (1 Hr.) Associate Professor MCCASKILL.

Trusts. (3 Hrs.) Ames' Cases on Trusts, second edition. Assistant Professor HARDMAN.

Second Semester

Bankruptcy. (2 Hrs.) Williston's Cases on Bankruptcy. Professor WELLS.

Conflict of Laws II. (2 Hrs.) Casebook to be announced. Assistant Professor HARDMAN.

Constitutional Law II. (2 Hrs.) Casebook to be announced. Dean JONES.

Municipal Corporations. (2 Hrs.) Casebook to be announced. Professor WELLS.

Partnership II. (2 Hrs.) Book to be announced. Professor TROTTER.

Practice Court and Procedure II. (4 Hrs.) Associate Professor MCCASKILL.

Private Corporations II. (2 Hrs.) (Omitted in 1914-15.)

Property IV. (2 Hrs.) Gray's Cases on Property, volume 6, second edition. Professor WELLS. (Omitted in 1914-15.)

Public Speaking 67. (2 Hrs.) Professor NEIL.

Suretyship. (2 Hrs.) Ames' Cases on Suretyship. Dean JONES.

The following courses, omitted in 1914-15, will be given the next year to the second and third year classes:

Public Service Corporations. (2 Hrs.) One semester. Wyman's Cases on Public Service Corporations. Assistant Professor HARDMAN.

Carriers. (2 Hrs.) One semester.

Persons and Domestic Relations. (2 Hrs.) One semester.

Quasi-Contracts. (2 Hrs.) One semester.

Insurance. (2 Hrs.) One semester.

METHOD OF INSTRUCTION

The purpose of the instruction given in the College of Law is to train the student thoroughly in the principles and procedure of the common law with particular reference to its application and modifications by decision and statute in West Virginia. The work of the students is based chiefly upon the study and discussion of decided cases, with collateral reading of statutes, approved text-books and periodicals, elucidated by lectures and free discussion in the class. In this manner are developed the grasp of fundamental principles and the powers of legal reasoning, discrimination and judgment, qualities indispensable to the practicing lawyer. This method is the same that has been used with eminent success for nearly a generation in the leading law schools of the United States.

COURSES IN PRACTICE AND PROCEDURE.

A. Moot Court Work.

It has been an objection frequently urged against the completeness of the training given in law schools that the students acquire no knowledge of actual practice. This objection is removed by the establishment of two especially organized courts patterned, so far as possible, upon the corresponding courts of West Virginia, and by the preliminary and supplementary courses in procedure, drafting of legal instruments, and legal tactics.

The two courts above mentioned are, first, a nisi prius court exercising original jurisdiction in law, equity, criminal, and probate cases, and, second, a supreme court of appeals to review the cases tried in the court of first instance.

Every third year student, before receiving the Bachelor's degree, is required to prepare the pleadings and prosecute to judgment the required number of cases in the nisi prius court, with the privilege of appeal to the appellate tribunal. The equivalent of at least two hours in each week during the year must be spent by each third year student in active participation in moot court work in the court room.

Statements of facts are furnished, such as would be related to a lawyer in active practice by his client. Each student must determine whether or not upon such facts the particular case in hand is one of common law, equity, criminal or probate cognizance. He must then frame his pleadings, serve his notice, and answer his adversary's pleadings until issue is joined in legal manner, after which the case is brought on for hearing in strict acordance with the rules of actual practice. Juries are impaneled in accordance with settled legal procedure, witnesses are examined and cross-examined, and the case conducted through all the various stages of the trial or hearing down to and including the judgment, decree or sentence, after which, should the case be appealed, it must be carried through the Supreme Court, involving the preparation of the record on appeal, briefs of counsel, etc.

The clerk and his assistant are chosen from the student body, from whose ranks are also drawn the sheriff, jurors, and other officials, thus giving to the students the benefit of practice in administrative judicial machinery. The Moot Court is to all intents and purposes an actual court.

Ample and suitable rooms are provided for the use of the court, including a court room furnished with the fittings necessary for the trial of jury cases, and a clerk's office. The latter is provided with the books and records used in actual practice.

B. Procedure.

Instruction in procedure is preparatory and suppementary to the work of the Moot Court, and is conducted by lectures and special study of the statutes and decisions governing West Virginia and Federal practice and procedure. Attention is given to the jurisdiction and functions of the Supreme Court of Appeals, the Circuit, County and inferior Courts, the various Federal Courts, and the powers, duties and liabilities of attorneys at law as officers of the court. Careful consideration is also given to the canons of professional ethics adopted by the American Bar Association. The statutes and decisions governing the purpose and use of extraordinary legal remedies, such as mandamus, habeas corpus, certiorari, quo warranto, etc., receive careful attention.

C. Preparation of Legal Instruments.

Students are instructed in this course in the actual preparation of deeds, mortgages, wills, abstracts and opinions of title, assignments, contracts, partnership agreements, and other legal instruments which a lawyer is called upon to prepare. Statements of facts are furnished to the class by the professor in charge and each student is required to prepare the various forms of instruments. These are corrected by the professor and are discussed and criticized in class. Careful consideration is given to special forms of execution and acknowledgement when one of the parties is a corporation, a partnership, a married woman, and the like.

ADMISSION TO THE BAR

By the order of the Supreme Court the faculty of the College of Law is made a board for the examination of candidates for admission to the Bar. Examinations of such candidates are held in Morgantown on the first Wednesday, Thursday, and Friday after New Years day and on the second Wednesday, Thursday, and Friday in June, in each year. Those who receive the degree of Bachelor of Laws from West Virginia University are admitted to the Bar without further examination.

THE SCHOOL OF MEDICINE

FACULTY

THOMAS EDWARD HODGES, LL.D., *President*

JOHN NATHAN SIMPSON, M.D., *Dean and Professor of Physiology and Anatomy*

ALEXANDER REID WHITEHILL, PH.D., *Professor of Chemistry*

FREDERICK LAWRENCE KORTRIGHT, D. SC., *Professor of Chemistry*

ALBERT MOORE REESE, PH.D., *Professor of Zoology*

AARON ARKIN, M.D., PH.D., *Professor of Pathology and Bacteriology*

WILLIAM HENRY SCHULTZ, PH.D., *Professor of Pharmacology and Materia Medica*

SAMUEL JOHN MORRIS, M.D., *Assistant Professor of Anatomy and Histology*

ROBERT WALDO FISHER, M.D., *Instructor in Physical Diagnosis*

IRVING HARDY, M.D., *Instructor in Minor Surgery*

THE COURSE IN MEDICINE

Regular instruction in subjects preparatory to the study of medicine was first given in West Virginia University in 1878, the "chair of anatomy, physiology, and hygiene" having been established in that year. A curriculum covering the first two years of a standard four years' medical course was provided in 1902 and the work was placed in charge of the College of Medicine with a resident faculty of six men. In 1912 The College of Medicine became the School of Medicine. In reorganizing the work in medicine The Board of Regents retained the general character of the curriculum previously offered but provided for a larger faculty, more laboratories and more adequate equipment.

As at present constituted The West Virginia University School of Medicine has its own dean and faculty but confers no degrees. It is not affiliated with any other college or school of medicine and its

students may go where they like to complete their medical studies and receive the degree of M.D.

Instruction in organic chemistry, physiological chemistry and embryology is given by members of the teaching staff of the College of Arts and Sciences. The work in physical diagnosis and in minor surgery is in charge of two practicing physicians, members of the local medical profession.

STATE BOARD OF HEALTH HYGIENIC LABORATORY

The hygienic laboratory of the State Board of Health is established in connection with the School of Medicine. Its function will be to deal with all problems which affect the health of the public generally, such as water analysis both bacteriological and chemical; analysis of milk, excreta, sputum for tuberculosis, throat swabs for diphtheria; pathological examination of diseased tissue for rabies and for cancer and other tumors; examination of blood for typhoid; etc. The use of the hygienic laboratory for milk and water analysis and for diphtheria examination is open to the public through county or city health officers, but for the examination of sputum and typhoid any physician may send specimens.

For pathological examination of tissues a small fee will be charged to those who are able to pay, otherwise the service is free.

All communications relative to the laboratory should be addressed to the director of the laboratory, J. N. SIMPSON, M.D., Morgantown, W. Va., or to the Secretary of the State Board of Health, S. L. JEPSON, M.D., Wheeling, W. Va.

LABORATORIES OF THE SCHOOL OF MEDICINE

The laboratories for work in anatomy, pathology, and medical bacteriology are in South Fife cottage, a two story frame structure which contains on the first floor a large lecture room and laboratory for histology and pathology, a preparation room and storage room for cadavers, and a dressing room provided with hot and cold water and with individual lockers for each student. The second story has a large well lighted room for work in gross anatomy and dissection.

ANATOMICAL LABORATORY.

The anatomical laboratory is equipped with the finest model Bausch & Lomb Baloptican for doing projective work, a very complete set of imported models of the brain and nervous system, eye, ear, thoracic and abdominal viscera, joints and muscles. There are

frozen sections of the body for use in the study of regional anatomy. Each student in gross anatomy has the use of a complete skeleton and each student in histology is provided with a high-grade microscope.

PATHOLOGICAL LABORATORY

The pathological laboratory occupies the first floor of South Fife Cottage, and is well lighted for microscopical work. It is equipped with all necessary apparatus for general and special work, including paraffine and celloidin microtomes, freezing microtomes, paraffine ovens, new Leitz microscopes with oil immersion lenses, all necessary stains and chemicals. There is also a projection apparatus with microscope attachment for demonstration purposes. The department possesses a large collection of mounted microscopic sections representing all the pathological processes and a museum of gross specimens. The apparatus of the hygenic laboratory as well as the material sent to it is placed at the disposal of the department. Surgical material is obtained from the city hospital.

LABORATORY OF MEDICAL BACTERIOLOGY.

The bacteriological laboratory is equipped with all necessary apparatus, such as sterilizers, incubators, glassware, etc. Each student is given a Leitz microscope with oil immersion lens. Special apparatus for bacteriological examinations of air, water, milk, blood, etc., is supplied to each student. The State Board of Health work in the hygenic laboratory furnishes plenty of material for laboratory work in bacterioogical diagnosis, such as Widal tests for typhoid, examination of sputum for tubercle bacilli, bacteriological examination of water, etc.

PHYSIOLOGICAL LABORATORY

The laboratory devoted to the work in physiology is large and well lighted. It is supplied with tables, each accommodating two students who work together. Each table has a complete set of Harvard physiological apparatus which is lent to the student with a charge for breakage only. There are for general use kymographs, apparatus for work in blood pressure, and blood counting, hemaglobinometers, charts and models.

PHARMACOLOGICAL LABORATORY

The pharmacological laboratory is situated in a large, well lighted room in Woodburn Hall. It is equipped with new chemical desks, operating tables, and the most modern type of electric kymo-

graph and respiration apparatus for taking continuous records of respiration and blood pressure. Special animal cages are provided to meet the needs of courses 41 to 47 inclusive. In addition, a special animal house for the proper care of experimental material is provided. Aside from the general equipment of the laboratory, each set of two students is provided with individual sets of apparatus and reagents. For the present the animal experiments for course 41 are being performed in the physiological laboratory. The laboratory is also provided with a collection of crude drugs, alkaloids, glucosides, and analytical chemicals.

ZOOLOGICAL LABORATORIES

The work in embryology is carried on in the zoological laboratories, which are well lighted and amply large for the number of students in these classes.

The equipment consists of a sufficient number of high-grade compound microscopes, each supplied with a camera lucida; dissecting microscopes; microtomes; incubator; paraffin bath; projection lantern; combined drawing and photomicrographic apparatus, etc. There are also sets of Zeigler's frog and chick models; various wax models of mammalian embryos; serial section of frog, chick, and pig embryos; entire, dissected and cleared human embryos; charts; skeletons, etc.

The chemical and botanical laboratories of the University are also open to students in the School of Medicine.

LIBRARY AND READING ROOM

The medical library is housed with the general library of the university which numbers 25,000 volumes. There is a good collection of works on chemistry, anatomy, physiology, zoology, botany, pathology and bacteriology. There are bound volumes of the leading scientific journals as well as some of the leading German, French and American journals devoted to the laboratory side of medicine. The library is in close proximity to the medical laboratories and is open all day and till ten o'clock at night.

ADMISSION TO THE SCHOOL OF MEDICINE

For admission to the School of Medicine the student must have credit for:

(a) Fifteen units of secondary school work, i. e., the work of a standard four-year high school.

(b) Thirty-two hours of academic work done either in the

College of Arts and Science of West Virginia University or in another institution of equal grade.

Of the fifteen units of secondary work required nine are definitely prescribed as follows:

		Units
English		3
Latin		2
History		1
Mathematics—		
Algebra, 1 unit Plane geometry, 1 unit	Total	2
Science—		
Physics, Chemistry, Botany, or Zoology	Any one of the four	1
Total prescribed		9

The remaining six units must be chosen as electives from the following list:

	Units
Latin	1 to 2
Greek	2 to 3
German	2 to 3
French	2 to 3
Mathematics—	
Algebra ½ unit Solid geometry, ½ unit Plane Trigonometry ½ unit	½ to 1½
History and civics	½ to 2
Physics	1
Chemistry	1
Botany	½ to 1
Agriculture	½ to 1
Zoology	½ to 1
Physical geography	½
Physiology	½
Drawing	½ to 1
Vocational studies	½ to 2

The thirty-two hours of academic work required must ordinarily be chosen from the following subjects:

	Hrs.
Botany 1 and 2	8
Chemistry 1, 2, and 3	10
Physics 1, 2, 3, and 4	8
Zoology 1 and 2	8
Modern language (French or German)	10

By the time the student is ready to enter the actual work of the School of Medicine he must have credit for a year's college work in physics, chemistry, and biology (botany and zoology) and must have a reading knowledge of one modern language.

NOTE:—By a resolution of the State Board of Health all applicants for license to practice medicine in West Virginia are required to file with the secretary of the Board their certificates of high school graduation or its equivalent. The secretary will investigate doubtful cases, asking the aid when necessary of the University committee on classification and grades.

COURSES OFFERED IN THE SCHOOL OF MEDICINE

A student who desires to prepare himself for the practice of medicine and who has satisfied the requirements for entrance to the freshman class of the College of Arts and Sciences may enter the University and follow either of the following programs or plans of work.

(a) He may matriculate in the College of Arts and Sciences and announce his intention of taking the combined scientific and medical course. After completing sixty-four hours (two years) of work in this college as follows: English 1, 2, 26, and 27, 10 hours; German 19 and 20, 6 hours; Physics, 8 hours; Chemistry, 8 hours; Zoology, 8 hours; Botany, 4 hours; Psychology, 2 hours; Elective (preferably chemistry or modern language), 18 hours; he may enter upon the two years course of the School of Medicine. On the completion of the course of this school as outlined below he will receive the degree of Bachelor of Science. He may then enter a standard medical college, complete its course and receive the degree of Doctor of Medicine. His college and medical course together will in this case usually occupy six years.

(b) Or he may take one year of academic work in the College of Arts and Science consisting of courses in physics, chemistry, biology, and modern language and then enter the School of Medicine and complete its course of two years. He will receive no degree from the University but may then enter a standard medical college and com-

plete its course in two years. The time required for this course is thus only five years. It should be noted, however, that a number of the best known medical schools now require fuller preparation than that afforded by this course and the student is strongly urged to take the longer course if possible.

Freshman Course for Pre-medical Students

First Semester		Second Semester	
Physics 1 8:00, M. W. F.	1	Physics 3 8:00, M. W. F.	3
Physics 2 2:00, T. Th.	1	Physics 4 2:00, T. Th.	1
Botany 1 9:00, W. F., 2:00, W. F.	4	Zoology 2 8:00, T. Th., 2:00, T. F.	4
Chemistry 1 10:00, M. W. F., 2:00, M.	4	Chemistry 2 10:00, M. W. F., 2:00, M.	4
German 1 or French 1 11:00, M. T. W. Th. F.	5	German 2 or French 2 11:00 M. T. W. Th. F.	5
Military Science 12:00, M. T. W. Th.	1	Military Science 12:00, M. T. W. Th.	1

Students should also take organic chemistry 3 (2 Hrs.) in the second semester if they can do so without exceeding the maximum of eighteen hours for the semester.

All the courses of instruction in the School of Medicine are also open as electives to students in the College of Arts and Sciences but unless the student announces his intention of taking the combined scientific and medical course as stated in (a) above he can not count more than fifteen hours of such elective work toward his degree in the College of Arts and Sciences.

CURRICULUM IN THE SCHOOL OF MEDICINE

First Semester

Physiology 2	8:00	M.W.Th.F., 2:00 T.	5	
Histology (Anat. 12)	9:00	M.W.F.	3	
Histology laboratory (Anat. 16)	3:00	T., 2:00 Th.	2	
Neurology (Anat. 15)	3:00	T., 2:00 Th.	2	
Embryology (Zoology 6) 1	10:00	M.T.F., 11:00 W.	3	
Elementary pharmacology 40	8:00	T., 10:00 Th.	2	18

First Year—Second Semester

Physiology 3	8:00		5	
Physiology 4	10:00	M.F., 11:00 W.	3	
Pharmacology 41	9:00	M.W.F.	3	
Pharmacology 42	10:00	T.Th.	2	
Anatomy 13	2:00		5	18

Second Year—First Semester

Bacteriology 3 (12 weeks)	8:00	M.T.Th., 2:00 M.T.W.Th.F.	5	
Pathology 21 (6 weeks)	8:00	M.T.Th., 2:00 M.T.W.Th.F.	3	
Pharmacology 43	9:00	M.W.F.	3	
Physical diagnosis 31	9:00	T.Th., 8:00 W.	2	
Chemistry 9	10:00	M.T.Th.F.	5	18

Second Year—Second Semester

Pathology 22	8:00		5	
Minor surgery 51	9:00	T.Th., 8:00 S.	3	
Chemistry 10	10:00	M.T.Th.F.	5	
Anatomy 14	2:00		5	18

COURSES OF INSTRUCTION

ANATOMY

Assistant Professor S. J. MORRIS.

A study of osteology and articulations is carried on in connection with the dissection of the cadaver. The cadaver is divided into three parts for purposes of dissection: the head including the thoracic viscera, the arm, and the leg with the abdominal and pelvic viscera. Each semester a student dissects two parts so that the

whole body and one extra part is dissected by each student in the course of two years. The supply of material for dissection is abundant and of the best quality.

13. Dissection. (5 Hrs.) Required of all first year medical students. A careful dissection, under supervision of the instructor of muscles, nerves, and bloodvessels, and the different organs of the body *in situ* supplemented once a week by a quiz of class in small sections. Laboratory fee, $5.00.

First semester: M. T. W. Th. F., 2:00; S. F. C.

14. Dissection. (5 Hrs.) Required of second-year medical students, continuation of course 13. Laboratory fee, $5.00.

Second semester: M. T. W. Th. F., 2:00; S. F. C.

15. Neurology. (2 Hrs.) Required of first-year medical students. A gross and microscopic study of the central nervous system using the sheep's brain and cord for dissection following which the student is required to study and draw a series of microscopical sections through typical regions of the human brain and cord. Laboratory fee, $2.00.

First semester: T. Th., 2:00; S. F.

12. Histology. (3 Hrs.) Required of first-year medical students. The work includes the study of cells, tissues, and organs with instruction in ordinary methods of preparing tissues for microscopical examination. The lectures are supplemented by the use of the projection apparatus. Lectures and quizzes.

First Semester: M. W. F., 9:00; S. F.

16. Histology. (3 Hrs.) A laboratory course to be taken in conjunction with course 12. Required of all first-year students. Special stress is laid upon the identification by the students of the various normal tissues and organs. For this reason careful laboratory drawings are required. In conjunction with the study of the organs a study of the fresh organs of the lower animals is required. Laboratory fee, $2.00.

First Semester: M. W. F., 2:00; S. F.

BACTERIOLOGY AND PATHOLOGY

Professor ARKIN.

3. Medical Bacteriology. (5 Hrs.) In this course the students become familiar with the preparation of culture media, the prin-

ciples of sterilization and disinfection, the methods of cultivating, staining and studying bacteria. Special attention is given to the pathogenic bacteria and their relation to disease; their hygienic as well as pathologic relations; the effects produced by animal inoculations; the bacteriological examination of air, water, milk, foods, sputum, blood, etc.; isolation of bacteria from unknowns. Laboratory fee, $3.00.

First Semester: (First twelve weeks): M. T. Th., 8:00. laboratory, M. T. W. Th., F., 2:10; S. F.

4. Advanced Bacteriology. (Credit according to work done.) This course consists of advanced bacteriological technique, dealing principally with methods employed in the conduct of modern research problems in bacteriology. Special technique, such as anaerobic cultivation, standardization of disinfectants, special stains, etc., is studied in the laboratory.

Hours to be arranged: S. F.

5. Hygiene and Sanitation (2 Hrs.) This course gives a thorough knowledge of the fundamental principles of the science, especially as they pertain to the welfare of the individual and to the proper care of the dwelling, municipality, and state. The factors concerned in the predisposition to disease or in its direct causation will also be considered. A study of air, water and food-stuffs as the source of disease; personal hygiene, school hygiene, disinfection, quarantine, disposal of wastes, vital statistics, etc. (Omitted in 1913-14.)

Hours to be arranged: S. F.

6. Research in Bacteriology. (Credit according to work done.) Open to a limited number of qualified students or graduates in medicine. Work leading to a higher degree may be taken. Whether taken as a major or a minor, part of the work will be a course consisting of seminar work and special bacteriological technique. In addition a special subject will be assigned for investigation.

7. State and Municipal Laboratory Methods. (Credit according to work done.) A study is made of the diagnosis of rabies, diptheria, typhoid, tuberculosis, glanders, syphilis, gonorrhoea, etc., and also of the bacteriological examination of water, milk, food, etc. Material from the hygienic laboratory is available. Prerequisite, Bacteriology 3 or its equivalent.

8. Immunity (Credit according to work done.) This course presents a thorough study of the subject of immunity with laboratory work on animals; of cytolysis, (including hemolysis and bacteriody-

sis), agglutination, toxins, precipitins, phagocytosis, anaphylaxis, and of the practical application of immunological reactions in the diagnosis, prophylaxis, and treatment of disease. The course will be given to two to six qualified students. Prerequisites, Bacteriology 3, and Pathology 21, or their equivalents. Hours to be arranged.

21. General Pathology (3 Hrs.) This course considers first the technique of tissue preparation, the obtaining, fixing, preserving, imbedding, cutting, staining, and mounting of morbid tissues for microscopic study; following this are taken up the causation of disease processes, disturbances of circulation and nutrition, inflammation, degeneration, infiltration, necrosis, tumor formation and other retrogressive and progressive tissue changes. In the laboratory illustrative tissues are studied microscopically, the gross features being correlated by demonstrations, lectures and animal experiments. The projection apparatus is employed as an additional means of demonstration, the essential features of each lesson being pointed out on the screen before each laboratory period. Drawings and descriptions are required.

First Semester (last six weeks); M. T. Th., 8:00, laboratory M. T. W. Th., F., 2:00; S. F.

22. Pathology of the Infectious Granulomas. and Tumors (5 Hrs.) Continuation of Pathology 21. This course deals with tuberculosis, syphilis, actinomycosis, blastomycosis, etc., and the benign and malignant tumors. A systematic study of the pathology of the special organs of the body is made. Lectures and recitations, laboratory work. Laboratory fee, $3.00.

Second Semester: T. Th., 8:00; M. W. F. 8-10.

23. Advanced Pathology (Credit according to work done.) This course is open to a limited number of students who have credit for General Pathology 21. Laboratory work will be given in special pathological technique, the study and recording of autopsies as they occur, and special pathological material. This course deals principally with methods employed in the conduct of modern research problems in pathology. Hours to be arranged for each student.
This course presents a study of the special pathology of various organs, with particular reference to the pathological physiology of each and the development of symptoms of disease. The changes in the more important diseases of each organ are studied in relation to their effect on the physiology of the organ. (Omitted in 1913-14).

Second Semester. Hours to be arranged.

24. Research in Pathology. (Credit according to work done.)

CHEMISTRY

Professor WHITEHILL and Professor KORTRIGHT.

3. Organic Chemistry. (2 Hrs.) This course is open to students who have completed any standard elementary text in inorganic chemistry, accompanied by individual laboratory work. It is also open to students who have completed Inorganic Chemistry 1 and are taking Inorganic Chemistry 2 in the same semester. The course includes the study of the more important organic compounds, especially those which have a wide technical application and those which are familiar in the operations of daily life. Experimental lectures, recitations and laboratory work.

Second semester; T., Th., 9:00; Professor WHITEHILL, 20 S.

9. Medical Organic Chemistry. (5 Hrs.) Required of second-year medical students. Prerequisite: Chemistry 1, 2, and 3. Laboratory fee, $8.00.

First semester; 10:00; Professor KORTRIGHT, 23 S.

10. Medical Analysis. (5 Hrs.) Required of second-year medical students. Continuation of Chemistry 9. Laboratory fee, $10.00.

Second semester; 10:00; Professor KORTRIGHT, 23 S.

EMBRYOLOGY

Professor REESE.

6. Vertebrate Embryology. (3 Hrs.) Required of first-year medical students. Cleavage, gastrulation and the formation of the germ layers are studied in the frog and chick; the development of organs in the chick and pig. The materials are supplied by sections, dissections, and cleared preparations of human embryos. Reese's Vertebrate Embryology. Prerequisite, Zoölogy 2.

First semester; M. Tu. F. 10:00; W. 11:00; 50 W.

MINOR SURGERY

Dr. HARDY.

51. Minor Surgery and Operative Technique. (3 Hrs.) Required of second-year students. Instruction by demonstrations and practice in the various manipulations of minor surgery, including the application of splints and bandages. Lectures and practical work in the principles of asepsis, antisepsis, and sterilization; preparation of patient and operator, and of instruments and operating rooms;

ligatures, sutures; dressing and care of wounds. Practical instruction of individual students in the induction of general and local anesthesia, under the supervision of the anesthetist of the surgical clinic.

Second semester; T. Th., 9:00; S. 8:00; City Hospital.

PHARMACOLOGY

Professor SCHULTZ.

40. Pharmacology. (Hrs.) This course or an equivalent is a prerequisite to all other required courses in pharmacology. It lays the foundation for accurate laboratory work and for prescription writing. Emphasis is laid upon such chemical tests and chemico-physical data as will prepare the medical student for the more technical information relating to incompatability of drugs, their absorption, excretion, and fate in the tissues.

First semester; T., 8:00; Th. 9:00; 8 W.

4. Pharmacodynamics. (2 Hrs.) Required of first-year medical students. A laboratory course beginning with simple experimennts upon cold-blooded animals, leading to more complex experiments with the lower mammals, and ending in operative work upon cats and dogs. Considerable emphasis is laid upon technique and a careful analysis of experimental results. Accurate notes are required and each student is required in the conference to give reasons for conclusions deduced from his experimental data.

Second semester; T. Th., 10:00; 8 W.

42. Systematic Pharmacology. (3 Hrs.) Required of first-year medical students. Continuation of courses 40 and 42. The subject matter covered is that outlined in Cushny's textbook, along with a consideration of some of the newer and non-official remedies. Class drills and home practice are introduced at intervals; hypothetical conditions are discussed; and each student writes out his own prescriptions, giving reasons therefor. Certain of these prescriptions are compounded and the possible pharmacodynamic action is discussed in conferences.

Second semester; M. W. F., 9:00; 8 W.

43. Systematic Pharmacology. (3 Hrs.) Continuation of course 41. Required of second-year medical students.

First semester; M. W. F., 9:00; 8 W.

45. Special Pharmacodynamics. (Credit according to work done.) Open to advanced students and special workers who desire

training in biological assay. In this course laboratory exercises will be offered which will train men to standardize disinfectants, glandular extracts, serum preparations, and such other products as lend themselves to biological assay. Courses 45 and 46 are especially recommended to advanced students intending to enter the Public Health Service or the government laboratories, where a knowledge of this class of work is essential.

Hours to be arranged; S W.

46. Toxicology. (2 Hrs.) A course of lectures supplemented by laboratory experiments, in which the toxic action of drugs is considered from a medico-legal point of view. Practical methods of diagnosing poisoning and the mode of conducting autopsies when the tissues are to be turned over to an analyst will be demonstrated. In the laboratory, special attention is given to the chief tests for the indentification of the principal alkaloids, glucosides, metallic and volatile poisons.

First semester; hours to be arranged; S W.

47. Chemo-Therapy. A research course open only to advanced students who have a knowledge of organic chemistry and who can read German.

Hours to be arranged.

48. Research in Pharmacology. Open to those who have special qualifications for advanced work.

Hours to be arranged.

Journal Club. All advanced workers in the department are required to take part in reporting the current pharmacological literature.

Both semesters: 7:30 P. M. F; S W.

PHYSIOLOGY

Dean Simpson.

1. Physiology. (5 Hrs.) Intended for college students who do not care to go into the details of medical physiology. The course covers fully all the preparation needed for teachers' courses. A study of the functions of the different organs of the body, illustrated by demonstrations of human organs and those of the lower animals, with a microscopic study of the most important tissues of the body.

A laboratory period, one afternoon each week will be given to the

dissection of the cat and to the preparation of histological slides of the different organs—laboratory fee, $1.00.

Second semester; M. T. Th. Fr., 11:00; laboratory, W. 2:00; 9 W.

2. **Physiology.** (5 Hrs.) Required of first-year medical students. Lectures, demonstrations, recitations and assigned lessons, covering the muscles, nerves, central nervous system, special senses, blood of lymph.

First semester; M. T. Th. F., 8:00; W. 2:00; 9 W.

3. **Physiology.** (5 Hrs.) Required of first-year medical students. Continuation of Physiology 2. Organs of circulation; physical factors; nervous control of organs; vasomoter nerves; respiration; digestion, secretion and nutrition; heat and production; reproduction.

Second semester: M. T. W. Th. F., 8:00; 9 W.

4. **Physiology.** (3 Hrs.) Required of first-year medical students. Laboratory course to supplement Physiology 2 and 3. Each student makes complete records of each experiment, and these with his note book are examined at the end of the course. Experiments in muscle contraction and conduction of nerves, blood pressure, heart control, pulse, and digestion. Laboratory fee, $2.00.

Second semester; M. W. F., 10:00; 9 W.

PHYSICAL DIAGNOSIS

Dr. FISHER.

31. **Physical Diagnosis.** (2 Hrs.) Required of second-year medical students. An introductory course in the study of internal histories, inspection, palpation, percussion, and auscultation in health and disease.

First semester; T. Th., 9:00; W., 8:00; 9 W.

SCHOOL OF MUSIC

STAFF OF INSTRUCTION

LOUIS BLACK, *Director and Head of the Vocal Department*

FREDERIC CURTIS BUTTERFIELD, A.B., *Head of the Piano Department*

SUSAN MAXWELL MOORE, A.B., *Instructor in Piano*

GRACE MARTIN SNEE, B.M., *Instructor in Piano and Pipe Organ*

MARGARET WINTON HORNE, *Instructor in Violin and Ensemble*

FLORA RAY HAYES, A.B., *Instructor in Theory and History of Music*

WALTER A. MESTREZAT, *Instructor in Wind Instruments*

GENEVIEVE CALDWELL ELLIOTT, *Student Assistant in Voice*

BUILDING AND EQUIPMENT

The school occupies the upper floor of Woodburn Hall which contains well appointed studios and practice rooms. A recital hall, seating 400 people, has been provided for lectures and students' recitals.

Commencement Hall, seating 1,500 people, contains a magnificent three-manual pipe organ, tubular pneumatic—built upon the universal wind-chest system and containing 76 stops and mechanical accessories. This organ, which receives power from an electric motor, is available for practice.

Just recently the school has been equipped exclusively with Knabe pianos; in all ten uprights and six concert grands.

CONCERTS AND RECITALS

FACULTY CONCERTS

Faculty concerts are given at least three times a year, the last of the yearly series being the Commencement concert. All the members of the School of Music Faculty participate in these concerts, though occasionally one member may give an individual recital.

STUDENTS CONCERTS

A students' concert is given each week. These concerts vary in grade from elementary to graduate and post graduate recitals. The object is to afford opportunity for the students to apply in public the proficiency that has been developed in the studio.

ARTISTS CONCERTS

During each year several artists of international fame are engaged for recital and concerts; such artists as Rosenthal, Harold Bauer, Tina Lerner, Francis McMillan, Schumann-Heink, Frances Alda, David Bispham and others.

These concerts are made easily accessable to students generally as there is a money value attached to the students' athletic tickets in purchasing seats.

THE CHORAL SOCIETY

All students of the University who can sing are admitted to the choral society upon payment of fifty cents, the membership fee. For those who are not students the fee is $1.00.

Students, generally, are urged to ally themselves with the society on account of its educational value; to vocal students this work is especially valuable for it is the custom to have all the solo work done, as far as possible, by members of the Society. The opportunity to sing roles in The Messiah and Elijah with orchestra is a most valuable experience.

GENERAL ANNOUNCEMENTS

Students may enter the School of Music at any time, but it is greatly to their interest to enter, as far as possible, at the beginning of the semester.

Students entering within the first two weeks of a semester will be charged for full semester; after that time, for the remainder of the semester and one week additional.

There is no deduction made for lessons missed by students except in case of prolonged illness, when the loss is divided equally between the student and the school.

Students of the School of Music are not allowed to take part in public programs or to join musical organizations without the consent of their respective teachers and the director of the school.

All music students are expected to attend the regular students' recitals, and to take part in them whenever so assigned, and to attend all concerts given under auspices of the University. They are

expected to identify themselves with the various organizations of the school, and are required to enter any to which they are assigned by the director.

It is expected that all students will take sufficient work—literary or musical or both—to occupy their entire time.

CREDIT FOR MUSIC ON COLLEGE COURSES

Credit towards the degree of Bachelor of Arts will be given for courses in the theory and the history of music, not to exceed fifteen semester hours.

COURSES OF STUDY

The School of Music offers instruction in the following subjects: voice, piano, violin, organ, accompanying, chamber music, orchestra, band music, sight-reading, public school music, harmony, counterpoint, canon and fugue and history of music. In voice, piano and violin two courses are offered, one of three years, leading to a teacher's certificate, and one of four years, leading to an artist's diploma.

REQUIREMENTS FOR ADMISSION

No student can be classified in the collegiate courses in music without passing an examination in solfeggio, or demonstrating to the satisfaction of the head of the department the ability to read music of moderate difficulty, and giving evidence of the mastery of the elements of music.

In the preparatory courses, to which children only are admitted, no previous knowledge of music is required.

REQUIREMENTS FOR GRADUATION

GENERAL REQUIREMENTS

Candidates for a teacher's certificate in any of the three courses mentioned above must have satisfactorily completed two years of high school English, one year of history and one year of a foreign language. They must also complete courses 1, 2, 3, and 4 in theory of music, courses 5 and 6 in history of music and show satisfactory proficiency in ensemble work.

Candidates for an artist's diploma must meet all the requirements imposed for the teacher's certificate and appear satisfactorily in a graduating recital.

VOICE

Candidates for the teacher's certificate in voice, in addition to the above general requirements, must satisfactorily complete the three-year course in voice as outlined below, and must possess the ability to perform acceptably selections from the standard oratorios and operas. They must also complete one year of work in each of the modern languages—French, German and Italian, and two years of piano.

Candidates for the artist's diploma in voice must satisfy all the requirements for the teacher's certificate, and must complete the fourth year's work in voice.

PIANO

Candidates for the teacher's certificate in piano, in addition to the general requirements, must satisfactorily complete the three-year course outlined below. They must also complete the course in ensemble playing.

Candidates for the artist's diploma in piano must satisfy all the requirements for the teacher's certificate and must complete the fourth year's work in piano. A graduating recital must be given part of which program shall consist of a standard concerto for pianoforte and orchestra.

VIOLIN

Candidates for the teacher's certificate in violin, must satisfactorily complete the three-year course in violin music as outlined below, including the concertos of Viotti, Rode and Kreutzer, and the lighter works of some modern composer. They must also have some knowledge of piano playing.

Candidates for the artist's diploma, in addition to the work required for the teacher's certificate, must complete the four year's work in violin music and give a graduating recital program including one sonata or concerto, one trio or quartet and solos.

NOTE—Students desiring to become candidates for certificates or diplomas should note that while the above mentioned courses are referred to as three-year and four-year courses no definite period of time can be assigned for their completion. In all cases certificates and diplomas are awarded on the basis of the proficiency acquired, rather than on the length of time devoted to the course.

DEPARTMENTS OF INSTRUCTION

Strict adherence to a fixed list of studies is not required. The needs of the individual student are considered and the studies varied accordingly. An idea of the work covered in the different classes may be obtained from the following:

VOICE

Mr. BLACK.

First Grade—Technique; scales, arpeggios, etc.; vocalises, Panofka and Concone, Vaccai and Marchesi in Italian. Simple songs in Italian and English.

Second Grade—Technique; scales, Lutgen, Concone, Lamperti, Panofka, etc., Vannucini in Italian; songs in Italian and English. Ensemble; duets, trios and quartets.

Third Grade—Technique; Bona, Lutgen, Concone, Bordogni, etc., Arias from standard grand operas and oratorios. Ensemble.

Fourth Grade—Technique; Bona, Lamperti, Concone, Aprile, etc., advanced. Oratorio roles, scenes from operas, various songs and arias in preparation for individual recitals. Ensemble.

Sight-Reading

Mr. BLACK.

This class meets once each week. In it is offered some preliminary work in harmony and notation in their particular relation to singing. The "movable do" is used: A modern and easily comprehended text-book is employed.

This work is required of vocal students. No fee is asked of them but to students from other departments a charge of $5.00 a semester is made. This course is recommended as a preliminary to beginners in voice.

PIANO

Mr. BUTTERFIELD, Mrs. SNEE and Miss MOORE.

To develop a love for and a knowledge of the best in the literature for pianoforte is the aim of this department. The varied needs of the individual student are carefully observed by each instructor; with the cooperation of the pupil, actual ability in playing and all round musicianship are readily acquired.

There will be thorough training in all the fundamentals of piano-

forte technique and the course required of candidates for the teacher's certificate or the artist's diploma comprises compositions from the following masters: Bach, Scarlatti, Handel, Mozart, Beethoven, Schubert, Weber, Mendelssohn, Schumann, Chopin, Liszt, Rubenstein, Brahms, Grieg, Saint-Saens, Schutt, Moszkowski, MacDowell, Franck, Reger, Rachmaninoff, Chaminade and Debussy.

VIOLIN

Miss HORNE.

The mastery of the violin, requiring, as it does, years of specialized effort, tends to restrict students in their musical studies. This course aims to give a thorough training in all the essentials of violin playing, and at the same time to pave the way to a broader, more general culture, which is a part of the true musician's education.

The course required of the candidates for the teacher's certificate comprises the Sevcik School of Music; elementary studies and exercises by Hofman, Dancla, Wohlfahrt, Kayser, and Dont; more advanced studies by Meerts, Mazas, Alard, Casorti, Kreutzer, Rode, etc.

PREPARATORY PIANO AND VIOLIN

The School of Music offers a well organized preparatory course in piano and violin. The beginners course has two lessons a week after school hours. Pupils generally remain in this course two years.

A course in violin instruction is offered for children, corresponding to the course of a similar nature in the piano department. Children who have had no training in music are admitted to this class.

PIPE ORGAN

The organ course is extended to provide a thorough and complete preparation for the work of a church organist and accompanist.

A certain facility at the piano and in sight-reading is necessary before this work is taken up.

Stainer's Organ Primer, with special pedal studies and hymn playing comprise the preparatory work.

Rinks' Organ School, Buck's studies in Phrasing and the works of Bach, Mendelssohn, Guilmont and Rheinberg comprise the groundwork of study through the course.

WOOD AND BRASS INSTRUMENTS

Mr. MESTREZAT.

Opportunity is offered in this course to obtain the instruction necessary to fit one to play the various wood-wind and brass instruments used in orchestras and bands.

ENSEMBLE

Miss HORNE.

1. **Lessons in Accompanying.** This course is intended to furnish opportunity to advanced students to acquire the art of accompanying songs, violin and cello solos.

2. **Chamber Music.** The study of sonatas, trios, and string quartets by Haydn, Mozart, Beethoven, Bach, Handel, Mendelssohn, Gade, Grieg, etc. Open to violinists, cellists, pianists and viola players. A preparatory class is also offered, the works to be studied including trios by Reinecke, Bohn, Haydn, Hellmsberger, Schubert and Weber.

3. **Orchestra Music.** A study of the usual orchestral works and of accompaniments of pianoforte and violin concertos.

CHORUS SINGING

Mr. BLACK.

The choral society meets for rehearsal once each week, and affords opportunity to obtain the pleasure and benefit of chorus singing as well as to acquire familiarity with the field of choral work.

THEORY OF MUSIC

Miss HAYES.

Fifteen hours of the following courses may be offered for credit in the College of Arts and Sciences.

1. **Harmony.** (5 Hrs.) Intervals. Scale and melody writing. Construction of the period. Triads, inversions, chord connections in three and four parts, cadences, chord of the seventh, inversions. Modulation.

First semester; 9:00; 47 W.

2. **Harmony.** (5 Hrs.) Harmonizing of melodies employing the use of triads, dominant, diminished and secondary sept-cords, with inversions, in dispersed harmony. Chorals. Chants.

Second semester; 9:00; 47 W.

3. Counterpoint. (5 Hrs.) Single melodic line. Narrow and wide leaps. Counterpoint in one, two, three, four and more parts. Syncopation, rests, ties. Diversity of rhythmic movement. Modulations. Motive development. Prerequisite: Harmony 1 and 2.

First semester; 11:00; 47 W.

4. Form and Analysis. (5 Hrs.) Chord reading. Primary forms. Canon in various intervals. Chamber music, oratorios and symphonies. The fugue form. The sonata form. Romantic art forms and modern forms. Orchestration.

Second semester; 11:00; 47 W.

5. History of Music. (4 Hrs.) A general survey of the history of music. Drill in the pronunciation of names. Ancient music. Classic music.

First semester; M. T. Th. F., 10:00; 477 W.

6. History of Music. (4 Hrs.) Music of the nineteenth century and present day topics. Romantic period in composition and opera. Modern period. Recent opera and oratorio. Critics and criticism. Present state of music. Twentieth century composers. Illustrations of periods by instructor and class.

Second semester; M. T. Th. F., 10:00; 47 W.

TUITION PER SEMESTER

The following table shows the rates of tuition for private lessons of thirty minutes in length.

	One	Two	Three per wk.
Voice			
Louis Black	$25.00	$40.00	$55.00
Genevieve Elliott	12.00	20.00	28.00
Piano			
Frederic Curtis Butterfield	25.00	40.00	55.00
Grace Martin Snee	18.00	28.00	38.00
Susan Maxwell Moore	18.00	28.00	38.00
Violin			
Margaret Horne	18.00	28.00	38.00
Pipe Organ			
Grace Martin Snee	25.00	40.00	55.00
Wood and Brass Instruments			
Walter Mestrezat	14.00	20.00	

Ensemble

Accompanying lessons	$12.00	per sem.	
Chamber music	6.00	per sem.	$10.00 per yr.
Orchestral class	3.00	per sem.	5.00 per yr.

Theory

Class daily, recitation one hour

Harmony, Analysis or Counterpoint	$20.00 per sem.
Musical history	16.00 per sem.

Tuition in other classes as follows:

Preparatory violin	12.00 per sem.
Preparatory piano	12.00 per sem.
Sight Reading	5.00 per sem.

Piano for practice, one hour per day, will be furnished at $6.00 per semester; two hours per day at $10.00 per semester; three hours per day at $14.00 per semester; four hours per day at $18.00 per semester.

Pipe organ practice, 1 hour per day $10.00 per semester.

Students whose work is wholly in the School of Music pay only tuition.

Students of the School of Music who take University work are subject to the usual fees except in the cases of French, German and Italian as required.

SUMMER SCHOOL

The University Summer School begins each year at the close of the Second Semester in June and lasts nine weeks

Several members of the Music School Faculty stay for the first six weeks.

This is of special interest to those who can come only in summer fo particular pains are taken to cover all the ground possible in six weeks and the courses of study are arranged with that end in view.

THE SUMMER SCHOOL

Sixteenth Session, June 22 to August 22, 1914

FACULTY.

THOMAS EDWARD HODGES, A.M., LL.D., *President of the University.*

WAITMAN BARBE, A.M., LITT.D. (Director of the Summer School, and Professor of English in the University) *English Literature.*

JOSEPH L. HENDERSON, PH.D. (Visitor of Schools, and Professor of Secondary Education in the University of Texas) *Education.*

F. A. MILLIDGE, PH.D. (Professor of Geography, State Normal School, Farmville, Virginia) *Geography.*

C. H. CONGDON, (Author of the Congdon Music Series) *Public School Music.*

GRACE M. GRIFFIN, A.B. (Supervisor of Physical Training in the Helena, Montana, Schools) *Plays, Games, and Sports for Children; Physical Training for Women.*

ADELE JOSLYN, (Supervisor of Drawing in the Buffalo, New York, Public Schools) *Public School Drawing; Handwork.*

K. H. BEVARD (Principal Ward School, Washington, D. C.) *Observation Classes, Seventh and Eighth Grades.*

ROSE T. COURSEY (Principal Elementary School, Baltimore County, Md.) *Observation Classes, Fourth, Fifth and Sixth Grades.*

ANNA MARGARET BOYDSTON, (Primary Supervisor in the Morgantown, W. Va., City Schools,—formerly of Cleveland, O.) *Observation Classes, Primary Grades.*

ADA ELEANOR REINER (Graduate Pratt Institute) *Supplementary and Occupation work for Primary Grades.*

LEON F. WILLIAMS, PH.D. (Professor of Chemistry in North Carolina A. and M. College) *Chemistry.*

JOHN L. SHELDON, PH.D. (Professor of Botany in the University) *Botany.*

OLIVER PERRY CHITWOOD, PH.D. (Professor of History in the University) *History.*

CHARLES EDWARD BISHOP, PH.D. (Professor of Greek in the University) *Latin; Greek.*

JOSEPH ELLIS HODGSON, PH.D. (Professor of Mathematics in the University) *Mathematics.*

LLOYD L. FRIEND, A.M. (Professor of Secondary Education in the University and State Supervisor of High Schools) *High School Organization and Administration.*

ALBERT MOORE REESE, PH.D. (Professor of Zoology in the University) *Zoology.*

L. J. HANIFAN, A.M. (State Supervisor of Rural Schools) *Rural School Supervision.*

MADISON STATHERS, PH.D. (Professor of Romance Languages in the University) *French; Spanish.*

SIMEON C. SMITH, A.M. (Associate Professor of Rhetoric in the University) *English Literature; English Composition.*

DAVID DALE JOHNSON, A.M. (Associate Professor of English in the University) *English Literature; English Composition.*

WALTER BARNES, A.M. (Instructor in English in the Glenville State Normal School) *English Literature; English Composition.*

CHARLES SUMNER CROW, A.M. (Assistant Professor of Education in the University) *Education.*

RACHEL HARTSHORN COLWELL, A.M. (Assistant Professor of Home Economics in the University) *Home Economics.*

MARY BIRD FONTAINE, (Supervisor of English, Charleston Schools) *Principles and Methods of Reading in the Grades.*

——————————— *Manual Training.*

CHARLES MOON, B.S.C.E. (Former Instructor in Physics in the University) *Physics.*

MYRON J. ABBEY, A.B. (Supervisor of Agricultural Education in the University) *Agriculture; Nature Study.*

EDWIN F. CHURCH, JR., M.S. in M.E. (Professor of Machine Design in the University) *Mechanical Drawing.*

EDWARD N. ZERN, B.Sc.E.M. (Professor of Mining Engineering in the University) *Practical Mining and Mine Rescue Work.*

L. D. ARNETT, Ph.D. (Librarian of the University) *Library Science.*

L. M. PEAIRS, M.S. (Associate Professor of Entomology in the University) *Entomology.*

L. F. SUTTON, B.Sc.Agr. (Instructor in Horticulture in the University) *Horticulture.*

R. E. HUNT, B.S.Agr. (Instructor in Animal Husbandry in the University) *Animal Husbandry.*

W. B. KEMP, B.S.Agr. (Instructor in Agronomy in the University) *Agronomy.*

THOMAS H. CATHER, (Instructor in Machine Shop in the University) *Machine Shop.*

RAYMOND E. SEAMAN, (Instructor in Woodworking and Foundry Practice in the University) *Woodworking.*

ROBERT E. SPANGLER, A.B.,*Assistant in Botany.*

LOUIS BLACK, (Director of the University School of Music) *Voice.*

MARGARET HORNE, (Instructor in Violin in the University School of Music) *Violin.*

FREDERIC C. BUTTERFIELD, A.B. (Head of Piano Department in the University School of Music) *Piano.*

SUSAN MAXWELL MOORE, A.M. (Dean of Women, and Instructor in Piano in the University School of Music) *Piano.*

GRACE MARTIN SNEE, B.M. (Instructor in Pipe Organ in the University School of Music) *Pipe Organ.*

PRELIMINARY ANNOUNCEMENTS.

The sixteenth annual session of the Summer School of West Virginia University will begin Monday, June 22, 1914, and continue until Saturday, August 22, a period of nine weeks. Most of the credit courses will extend through the entire period, but credit may also be had for six weeks' work in all such courses by students who may be unable to remain for nine weeks.

Most of the professional courses intended especially for teachers will last through the first six weeks only.

All classes will meet daily, and no course will last for a shorter period than six weeks.

The Summer School exists for two main purposes, namely: first, to enable teachers to prepare themselves better, both professionally and academically, for their work; second, to enable all who desire to do so to work toward their college degrees. With these two ends in view, courses in great number and variety are offered in both professional and academic subjects. All classes of teachers, whether their work is in the country schools, city schools, high schools, or normal schools, will find here courses of interest to them; and college students can go on with their work as well as at any other time of the year.

The students who attend the Summer School may be divided into four classes:

1. Those who desire credit on their preparatory requirements or towards their college or advanced degrees for the work done.

2. Those who take courses which will entitle them to the renewal, without further examination, of their first-grade uniform teachers' certificates.

3. Those who enter regular classes for serious work, but who do not desire credit for it. Such students may or may not take the examinations at the close of the term. Most of them do not.

4. Those who attend the observation classes, the lectures, the musical recitals, etc., but do not enter upon serious or continuous study. Such students are usually persons who feel too much worn out when summer comes to take up difficult work, but who nevertheless desire to get as much profit and pleasure as possible out of the Summer School.

Last summer several states were represented, and every county in West Virginia but three. There were public school teachers of all grades, high school principals, city superintendents, county superintendents, rural teachers, district superintendents, regular college students, graduate students, and music students. Of the 500 students enrolled, 222 did regular work for credit; 145 remained for nine weeks. Of the total enrollment, 302 were women.

ADMISSION.

There are no requirements for admission to the Summer School unless the student desires University credit for the work to be done. In such case he must satisfy his instructors that he is prepared to take the courses selected. If he desires regular classification he must meet the regular University requirements for admission, a statement of which may be found in the University catalogue.

CREDIT.

Entrance or college credit may be had for most of the Summer School courses. The amount of credit will be found stated after each course in the Detailed Announcements, ready about April 1.

Only regularly matriculated students may use Summer School credits to count toward a degree at West Virginia University, but all others who do the work of the summer school credit courses and take the examinations in them may secure statements of their work to be used in any other way they may like. Students taking the non-credit courses will be given certificates, stating that they have attended the classes and done the work of the course. The Registrar will send reports at the end of the term to all matriculated students and the Director of the Summer School will furnish copies of the following certificate to all others who may desire them:

"This is to certify that ..... attended the Summer School of West Virginia University, 1914, from ..... to ..... and pursued the following work. If definite grades are given, this certificate may be used for credit if presented to secondary schools, otherwise it is only a testimonial."

The work of students taking courses for the renewal of their first-grade teachers' certificates will be reported to the State Superintendent of Schools.

FEES.

The entire fee for everything offered in the Summer School (excepting private instruction in music), is $5.00, whether the student be a resident of West Virginia or of some other State, provided that University credit for summer work is not desired. If University credit for the work is desired, a matriculation fee of $5.00 must be paid, unless the student is already a matriculate of the University.

Students from states other than West Virginia who desire to obtain University credit for the summer work will pay also a tuition fee of $10.00.

If, however, no University credit is desired, the total fee for students from other states, as well as from West Virginia, will be only $5.00. This statement applies, of course, to all students desiring certificates for the work done in the Summer School.

Small laboratory fees, depending upon the courses taken, are charged in some of the laboratory courses.

TEXT-BOOKS.

All text-books needed may be obtained at the University bookstore in one of the University buildings practically at cost.

LIVING ACCOMMODAIONS.

For Women.

Miss Susan Maxwell Moore, Dean of Women, has charge of the living accommodations for women students in the Summer School.

Room and board in Women's Hall and Women's Hall Annex costs from $4.00 to $4.50 a week, payable for six or nine weeks in advance. The young women furnish their own sheets and pillow-slips. (For laundering these there is a charge of fifty cents for six weeks and seventy-five cents for nine weeks).

Desirable rooms and board may be obtained in the immediate neighborhood of Women's Hall as well as in other parts of the town. The cost at private boarding houses is usually a little more than it is at the Hall.

It is highly desirable, though of course not absolutely necessary, to engage living accommodations early. Write to Miss Susan Maxwell Moore, Dean of Women, Morgantown, West Virginia, to secure full information and to engage rooms and board, either in the Hall or out of it.

All women students are requested to make Women's Hall headquarters upon their arrival. Miss Moore and her assistants will see that they are provided with living accommodations. Please report to Women's Hall upon arrival, if the committee should fail to meet you at the station. Take street car direct to Women's Hall, 247 Willey street.

For Men.

Board and lodging may be obtained, together, in Morgantown at the Men's Co-op Club, 52 University Driveway, for $3.50 a week; board alone for $2.75 a week, and room alone, with two in a room, for seventy-five cents a week. In private homes, room rent ranges from seventy-five cents to $1.50 a week, and board may be had in private boarding houses at from $3.00 to $4.00 a week. Men desiring accommodations should address Frank B. Lewellyn, Secretary Y. M. C. A., Morgantown, West Virginia, stating kind of place wanted, locality desired, and price they are willing to pay.

DEMONSTRATION OR "MODEL" SCHOOL.

A demonstration or "model" school will be conducted during the first six weeks of the Summer School. It will be composed of children from all of the regular eight grades of the elementary school, and will be in charge of three trained and successful teachers.

Many of the Summer School students find that they can spend

a period every day with very great profit in observing the actual work of expert instruction. New standards of teaching as well as new methods are obtained by intelligent observers.

Students in some of the classes in the Department of Education will be expected to do some practice teaching in the demonstration school.

RENEWAL OF TEACHERS' CERTIFICATES.

By a recent act of the legislature of West Virginia, holders of first-grade teachers' certificates may obtain a second renewal of such certificates by studying for nine weeks in an accredited Summer School. By doing satisfactory work in three courses (classes), wholly professional or partly professional and partly academic, in the University Summer School, this requirement may be met. Last summer a good many teachers took advantage of this excellent provision. The coming summer more satisfactory opportunities will be offered for the selection of suitable courses.

SUMMER SCHOOL OF MINES.

A summer school of the Department of Mining of West Virginia University will be held in connection with the University Summer School. Its purpose is to offer to men engaged in the mining of coal, from the lowest in authority to the highest, an opportunity to receive a short course of instruction in subjects pertaining strictly to their life work. The first session was held last summer and proved to be of great practical value. A special bulletin entitled "School of Mines" has been published by the University and may be had by addressing Dean C. R. Jones, Morgantown, W. Va.

FREE MUSIC RECITALS AND MATIN SERVICE.

Weekly lecture recitals, under the direction of the School of Music, will be given. Great composers will be briefly discussed and their works interpreted with voice, piano, violin or organ by Professor Black, Miss Horne, Mr. Butterfield, and others. These delightful recitals are free to students and the public. A brief chapel service will precede these music recitals. They will be held every Wednesday at 11 o'clock in Commencement Hall. During that hour no other exercises will be held in any department of the Summer School.

EDUCATIONAL CONFERENCE.

The eleventh annual two-days Educational Conference, under the auspices of the University Summer School, will be held Friday and

Saturday, July 24 and 25, 1914. The general topic for discussion will be published in the Detailed Announcements. As usual the leading educators of the state will take part in this discussion, and the proceedings will be published by the University.

DETAILED ANNOUNCEMENTS.

Detailed announcements giving full information concerning all of the courses offered and other features of the Summer School will be issued April 1 and may be had upon request. Letters of inquiry will be answered with pleasure Address the Director of the Summer School.

WAITMAN BARBE,
Morgantown, West Virginia.

THOMAS E. HODGES, LL. D.,
President of the University.

THE DIVISION OF MILITARY SCIENCE AND TACTICS

THE FACULTY

THOMAS EDWARD HODGES, A.M., LL.D., *President*

DEAS ARCHER, *First Lieutenant 26th. U. S. Infantry, Professor of Military Science and Tactics and Commandant of Cadets*

This institution being one of the beneficiaries of the Act of Congress of 1862, instruction in military tactics is made compulsory for the freshman and sophomore years.

The Division is in charge of an officer of the United States Army, detailed by the War Department, as professor of military science and tactics. The Cadet Corps is inspected once each year by an officer of the General Staff of the Army.

All cadets are required to wear a neat-appearing gray uniform at drill. This uniform may be worn with propriety on all occasions. Its cost is about $17.50.

All cadets are divided into two classes, i. e.: State cadets and Volunteer cadets.

State cadets are those who receive appointments under the provisions of the following act of the legislature of the State of West Virginia.

Volunteer cadets are all other cadets belonging to the cadet corps of the University.

Extract from the Military Law, State of West Virginia, January 19, 1903:—"Each member of the Senate shall be entitled to appoint one cadet from his district, on or before the first day of June in the second year of his term. Each member of the House of Delegates shall be entitled to appoint one cadet from his county on or before the first day of June next preceding the end of his term. In case a cadetship filled by appointment by any member of the Legislature shall become vacant the member making the appointment, or his successor, shall fill the same by a new appointment within the limits of the time aforesaid. But no Senator or Delegate shall appoint any cadet until he receives a certificate from the President of the University, or the Commandant of Cadets, giving him notice of his right

to do so; and he shall not have the right to exercise such power of appointment as long as two cadets are accredited to himself and his predecessor, either by original appointment or by re-enlistment. All other cadets necessary to make up the full complement of the corps shall be appointed by the regents, in proportion to their number, including vacancies, if any, caused by the failure of any member of the Legislature to fill his appointment. Cadets shall not be under sixteen years of age, and shall not be over twenty-two years of age. Their appointment shall be made upon undoubted evidence of good moral character and sound physical condition. Their term of enlistment shall be four years, but any cadet, at the expiration of his first term, shall be entitled to re-enlist for the further term of two years, upon giving notice of his intention to the commandant of Cadets at least thirty days before the expiration of such term. But not more than fifteen cadets shall be appointed from any Senatorial district, and not more than eight from any one county."

REQUIRED WORK IN MILITARY SCIENCE

The following order has been adopted by the State Board of Regents:

Ordered that all male students, with the exceptions hereinafter named, enroll themselves in the Division of Military Science and follow diligently the course of instruction provided therein. Proficiency in this course shall be required for graduation.

Practical and theoretical instruction shall be given four hours per week throughout the school year. A credit for one hour shall be given for each semester's work satisfactorily completed. Such credit shall be included in the computation of the student's standing at the end of each semester.

Every student enrolled in the Department of Military Science, whether he holds a cadet appointment or not, shall at the time of his enlistment deposit with the financial secertary of the University $17.50 to cover the cost of the uniform to be furnished him. This deposit is not to be refunded, but in case a cadet serves longer than two years, he shall at any time after the beginning of his third year of service be furnished a new uniform or such part thereof as the Commandant of Cadets may find that he needs, without cost to him.

The following classes of students shall not be required to enroll themselves in the Military Division but may elect to do so:

(1) All students who are citizens of a foreign country and do not intend to become citizens of the United States.

(2) All students who at date of entrance in the University are more than twenty-three years of age.

(3) All graduate students.

(4) All students whose studies are entirely in the School of Music.

(5) All students who are taking only the short course, or the special winter course, or agricultural extension work in the College of Agriculture.

(6) All students who are classified as juniors or seniors in the various colleges, and who have completed two years' service in the military division.

(7) All students who are physically unable to perform military duty.

(8) All students who are compelled to seek employment in order to defray expenses while in the University, providing that such employment cannot be arranged so as not to interfere with the drill hour. It is not the intention to force students to drill when to do so would practically compel them to leave the University. On the other hand, students can not be permitted to engage in other occupations which are not necessary for their support and be excused from drill on the ground that such employment occupies the drill hour. In such a case drill shall be regarded the same as any other study.

No cadet exempted from military drill by reason of self support shall be permitted to enroll himself in any student organization other than the regular literary or scientific organizations of the University.

A board, to be known as the military and gymnasium board, shall be composed of the commandant of cadets, the director of physical training, and a surgeon of the corps of cadets, designated by the President. This board shall act upon claims for exemption from miiltary service.

Students who claim exemption under any one of the first six cases must, within seven days after their registration in the University, present to the commandant, in writing, their request accompanied by such evidence as is relied upon to support the request. A failure to make the request within the stated time shall bar the student from claiming exemption.

Students who claim exemption under the seventh or eighth case must within seven days after their registration in the University present to the commandant of cadets, in writing, their request accompanied by such evidence as is relied upon to support the request. Applicants for exemption on the ground of physical disability shall be carefully examined by a surgeon of the corps. A fee of one dollar to be paid to the examining surgeon shall be charged for such examination.

Students exempted under the seventh and eighth cases shall, upon recommendation of the military and gymnasium board, be required to register for such physical training as they can take until

they have earned a credit equal to that given for the prescribed military work.

In none of the preceding cases shall a student absent himself until his application has been acted upon.

It shall be the duty of the commandant to notify the chairman of the committee on classification and grades whenever the military and gymnasium board exempts a student or recommends that he be required to register for other than military drill.

Whenever the cause for exemption shall no longer exist, it shall be the duty of the student to present himself for drill at the next drill period.

Upon recommendation of the athletic board of control, in writing, the commandant of cadets may excuse cadets to take part in athletics. Such cadets shall be excused during the active season only. No cadet shall be excused for practice in more than one class of athletics in any one year.

Students may appeal from the decision of the commandant of cadets or the military and gymnasium board, in which case the appeal shall be decided by the council of administration.

All cadet officers taking military instruction as an elective shall be, as to their tuition and fees, on the same basis as state cadets.

SPECIAL REWARDS FOR MILITARY EXCELLENCE

The names of the three most distinguished cadets of the graduating class are sent to the Adjutant General of the Army and to the Adjutant General of the State. One of these three may be designated each year to take the examination for commission in the regular army.

All graduates of the Military Division are eligible, within five years after graduation, to commissions as first lieutenants in the organized Militia of the State, without examination.

The State Board of Regents offers the following medals as special rewards for excellence in military training:

(1) To the cadet having the best record for drill discipline, a gold medal; (2) To the cadet having the highest aggregate score at target practice, a silver medal; (3) To the cadet having the second highest aggregate score at target practice, a bronze medal.

ARMORY

The Armory (60 by 120 feet) is used as a drill hall during inclement weather. This building is the home of the cadet corps, and all entertainments given by them are held therein, under the supervision of the commandant of cadets.

ADMINISTRATION AND INSTRUCTION

For the purpose of administration and drill the cadet corps is organized as a battalion of infantry.

The work in military science is taken in connection with other University work, and requires about four hours each week. The course of instruction is intended to fit all who graduate therein to perform efficiently the duties of officers in the Organized Militia of West Virginia or of volunteers. The winter months are devoted to theoretical instruction in tactics and other military subjects, together with practical instruction in drill and in gallery practice.

BAND

A band of thirty-nine musicians is authorized by the Board of Regents. Band cadets are volunteer cadets. They receive the same allowances as state cadets and are governed by the same rules and regulations. They are instructed in military drill to include the school of the soldier and of the squad.

INFORMATION FOR APPLICANTS FOR APPOINTMENT TO THE CADET CORPS

1. The applicant must not be under sixteen nor over twenty-two years of age.
2. He must be a bona fide resident of West Virginia.
3. He must be sound physically and of good moral character.
4. He must deposit $17.50 with the financial secretary of the University to cover the cost of his uniform.
5. He must make an average grade each semester of not less than sixty on a scale of one hundred, in order to hold his appointment.
6. He is allowed free stationery and the use of text-books to the value of $15.00 a year. He pays no matriculation, tuition, or contingent fees to the University. If he is graduated from any department of the University while a member of the cadet corps, he is allowed to retain his text-books.
7. The work of the corps does not interfere with the student's scholastic duties. Cadets may take courses in any of the departments of the University.
8. A young man desiring an appointment should apply to the regent for his county, or to a member of the Legislature representing his county. The counties of the state are divided as follows by the Board of Regents for the purpose of cadet appointments:

REGENT E. W. OGLEBAY, Wheeling, W. Va.
First, Second, and Eleventh Districts. Brooke, Hancock, Ohio, Marion, Tyler, Wetzel, Marion, Monongalia, Taylor.

REGENT J. B. FINLEY, Parkersburg, W. Va.
Third, Tenth, and Twelfth Districts. Pleasants, Ritchie, Wirt, Wood, Braxton, Calhoun, Gilmer, Pocahontas, Webster, Doddridge, Harrison, Lewis.

REGENT G. S. LAIDLEY, Charleston, W. Va.
Seventh, Eighth and Ninth Districts. Mercer, Monroe, Raleigh, Summers, Boone, Kanawha, Logan, Clay, Fayette, Greenbrier, Nicholas.

REGENT G. A. NORTHCOTT, Huntington, W. Va.
Fourth, Fifth, and Sixth Districts. Jackson, Mason, Wayne, Roane, Cabell, Lincoln, Putnam, McDowell, Mingo, Wyoming.

REGENT M. P. SHAWKEY, Charleston, W. Va.
Thirteenth, Fourteenth, and Fifteenth Districts. Barbour, Pendleton, Randolph, Upshur, Grant, Hardy, Mineral, Preston, Tucker, Berkeley, Hampshire, Jefferson, Morgan.

9. Students who have cadet appointments should upon their arrival at the University present themselves at the office of the Commandant, in the armory, and obtain the necessary information about registering, etc.

10. The number of state cadets allowed by law is 225.

11. Any cadet who is absent without leave for more than ten days will forfeit his appointment, and will be dropped from the rolls. He cannot reenter the university without special permission.

COURSES OF INSTRUCTION

The following courses in Military Science and Tactics are offered, each course requiring four hours practical work or two hours practical work and one recitation per week, for which a credit of one semester hour is given.

1. Military Science. (1 Hr.) (a) Practical: infantry drills, bayonet exercise, gallery practice and setting up drill. (b) Theoretical: recitations in Infantry Drill Regulations, U. S. Army.

First semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

2. Military Science. (1 Hr.) (a) Practical: same as course 1 with addition of guard duty and range practice. (b) Theoretical:

recitations in Infantry Drill Regulations, U. S. Army and Manual of Guard Duty.

Second semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

3. **Military Science.** (1 Hr.) (a) Practical: same as course 1. (b) Theoretical: recitations in Infantry Drill Regulations, U. S. Army.

First semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

4. **Military Science.** (1 Hr.) (a) Practical: same as course 2. (b) Theoretical: recitations in Infantry Drill Regulations, U. S. Army, and in Small Arm Firing Regulations, U. S. Army.

Second semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

5. **Military Science.** (1 Hr.) (a) Practical: same as course 1 (b) Theoretical: Field Service Regulations, U. S. Army.

First semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

6. **Military Science.** (1 Hr.) (a) Practical: same as course 2. (b) Theoretical: recitations in Field Service Regulations, U. S. Army.

Second semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

7. **Military Science.** (1 Hr.) (a) Practical: same as course 1. (b) Theoretical: recitations in Manual for Courts-Martial.

First semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

8. **Military Science.** (1 Hr.) (a) Practical: same as course 2. (b) Theoretical: recitations in U. S. Army Regulations and Map Reading and Military Sketching.

Second semester; M., T., W., Th., 12:00; Lieutenant ARCHER, and Cadet Officers.

MILITARY GRADUATES AND DISTINGUISHED CADETS

Reported at Commencement, June, 1913.

The following are announced as distinguished cadets:

Cadet Captain CHARLES S. ROBINSON, Co. "B."
Cadet Captain JOHN Y. YORK, Co. "D."
Cadet Sergeant-Major GLENN F. WILLIAMS.

The following named cadets having completed the prescribed course of instruction are announced as graduates of the Department of Military Science and Tactics:

Cadet Captain CHARLES S. ROBINSON, Co. "B."
Cadet Captain JOHN Y. YORK, Co. "D."
Cadet First Lieutenant MARTIN L. BONAR, Co. "B."
Cadet First Lieutenant GEORGE G. DAVIS, Co. "C."
Cadet First Lieutenant JOSE DE A. KIRK, Q. M.
Cadet Sergeant-Major GLENN F. WILLIAMS.
Cadet Private ISAAC M. ADAMS, Co. "B."
Cadet Private FREDERICK B. MORGAN, unassigned.

Upon the decision of the Judges, the cadet colors for the ensuing year are awarded to Company "B."

Upon the decision of the Judges, the sabre offered by the M. C. Lilley & Co., to the Captain of the best drilled company, is awarded to Cadet Captain JAMES C. ALLEN, Co. "A."

The medals offered by the Board of Regents are awarded as follows:

(1) The gold medal for drill and discipline, to Cadet Private FRANK E. HUTCHINSON, Co. "C."

(2) The silver medal for the highest aggregate score at target practice, to Cadet First Sergeant MAX WRIGHT, Co. "D."

(3) The bronze medal for the second highest aggregate score at target practice, to Cadet Private ISAAC M. ADAMS, Co. "B."

ROSTER OF THE CORPS OF CADETS

Deas Archer,	1st Lieutenant 26th Infantry, Commandant.
George W. May,	Ordnance Sergeant, U. S. A. Retired, Armorer.

FIELD AND STAFF

N. M. Heflin,	Cadet Major
J. N. Simpson,	Captain Surgeon
J. C. Allen,	Cadet Captain, Adjutant
G. H. Easley,	Cadet Quartermaster

Non-Commissioned Staff

R. M. Strickler,	Cadet Sergeant Major
E. D. McGara,	Cadet Quartermaster Sergeant
J. L. Hagen,	Cadet Color Sergeant
F. L. Lemley,	Cadet Color Sergeant

BAND

W. A. Mestrezat,	Chief Musician
R. R. Feller,	Cadet Principal Musician
M. Wilcoxen,	Cadet Drum Major

Cadet Sergeants.

H. L. Doxsee,
H. B. Marr,
H. C. Brown,
F. Compton.

Cadet Corporals

A. K. Carroll,
E. F. Heiskell,
H. C. Schramm,
T. Burdette,
C. C. Gill,
G. E. Greer,
R. H. Tuckwiller,
H. C. Swan.

COMPANY "A"

S. P. Hoskins, Cadet Captain
C. Sander, Jr. Cadet 1st. Lieutenant
H. L. Crane, Cadet 2nd. Lieutenant
W. R. Sayre, Cadet 1st. Sergeant

Cadet Sergeants.

W. L. Linton,
E. D. Stewart,
S. A. Kelley,
C. E. Bishop.
M. C. Nelson,

Cadet Corporals

J. C. Powell,
L. G. Drake,
C. W. McDowell,
M. R. Dodd.
J. A. Savage,
C. F. Wells,

COMPANY "B"

M. L. Bonar, Cadet Captain
J. F. Robinson, Cadet 1st. Lieutenant
J. S. Miller, Cadet 2nd. Lieutenant
A. R. Groves, Cadet 1st. Sergeant

Cadet Sergeants.

C. W. Wood,
H. M. Harper,
J. Bierer.
H. S. Dilcher,

Cadet Corporals

E. V. Morton,
P. P. Warden,
F. G. Ash,
O. H. Stanard.
J. L. Shougrou,

COMPANY "C"

L. G. Burrell, Cadet Captain
R. H. Gist, Cadet 1st. Lieutenant
J. P. Weaver, Cadet 2nd. Lieutenant
E. J. Kersting, Cadet 1st. Sergeant

Cadet Sergeants.

R. F. Miller,
G. H. Bailey,
L. O. Griffith.
D. Brannon.

Cadet Corporals

J. A. Thompson,
L. V. Carpenter,
R. B. Hutchinson,
W. W. Fleming,
E. R. Vawter,
W. H. Boone.

COMPANY "D"

D. R. Dodd, Cadet Captain
O. E. Duling, Cadet 1st. Lieutenant
E. A. Hamilton, Cadet 2nd. Lieutenant
J. R. Seckman, Cadet 1st. Sergeant

Cadet Sergeants.

H. W. Jarrett,
C. R. Smith,
K. McClung,
A. J. Gibson.
C. H. Cather.

Cadet Corporals

R. E. Davis,
C. J. Kaltenbach,
J. J. Jacob, Jr.
H. Ferguson,
P. M. Fulcher,
R. D. Woods.

DEGREES DIPLOMAS AND PRIZES

FORTY-SIXTH ANNUAL COMMENCEMENT, JUNE 8, 1913.

CANDIDATES FOR DEGREES.

Masters of Arts

MARY MEEK ATKESON.....Buffalo
A. B., West Virginia University, 1910

LEO D. COVERT.....Moundsville
A. B., Washington and Jefferson College, 1911

Bachelors of Arts

CARL GEORGE BACHMAN.....Wheeling
BESSIE BOYD BELL.....Glenville
LOUIS EUGENE BOUTWELL.....Lambertville, N. J.
HYRE CLYDE BRAKE.....Auburn
CHARLES LESTER BROADWATER.....Harrisville
ANNA BEULAH CHRISTINE DAVIS.....Morgantown
BLANCHE FRANCES EMERY.....Sistersville
SYLVESTER CARSON GROSE.....Sago
ELEANOR EMMA HERRING.....Kingwood
JAMES HOWARD HICKMAN.....Harrisville
CHARLES EDWARD HODGES.....Morgantown
ELIZA PEARL HODGES.....Morgantown
JAMES EDWARD KENNEDY.....Boothsville
KATHARINE WALTER KUMLER.....Carmichaels, Pa.
JOHN ALEXANDER MACRAE.....Morgantown
VAUN DAVIS MCMINN.....Jefferson, Pa.
WILLIAM VERNON MCNEMAR.....Lahmansville
ALEXANDER MILLER.....Morgantown
BEULAH FRANK PICKENPAUGH.....Morgantown
HELEN ELIZABETH PURINTON.....Morgantown
BESSIE JANE REED.....West Alexander, Pa.
CHARLES STILLMAN ROBINSON.....Uniontown, Pa.
IVAN VAUGHAN DETWEILER SHUNK.....Morgantown
EDITH SCOTT SMITH.....Morgantown
LOUISE STEALEY.....Clarksburg
HUNTER WHITING.....Glenville
EDGAR WILLIAMS.....Morgantown
ALBERTA LOUISE WOODFORD.....Morgantown

Bachelors of Science

MARTIN LOXLEY BONAR.....Moundsville
EUGENIO FERNANDEZ GARCIA.....Rio Grande, P. R.
HOMER WILLARD GRIMM.....St. Marys
SADIE RAY GUSEMAN.....Morgantown
NELLIE MARGARET MCCONNELL.....Sherrard
CLARENCE JAMES PRICKETT.....Fairmont
HARRIET EFFIE STEELE.....Newburg
HOMER ALLEN LEPPS WALKUP.....Falling Springs
JOHN Y. YORK, JR.....Kenova

Bachelors of Laws

CARL OSCAR SCHMIDT.....Wheeling
LL. B., University of Virginia, 1912

Masters of Laws

ISAAC MAXWELL ADAMS.....Ravenswood
CURTIS EDGAR AMOS.....Fairmont
CHARLES GEORGE BAKER.....Morgantown
A. B., West Virginia University, 1911
WILLIAM JOSEPH BRENNEN.....Kingwood
A. B., Rockhill (Md.) College, 1909
NATHAN CLARKSON BURDETT.....Charleston
LEO PATRICK CAULFIELD.....Clarksburg
A. B., Rockhill (Md.) College, 1906
GEORGE GARRETT DAVIS.....Sutton
REUBEN FINE.....Martinsburg
BENJAMIN FRANKLIN KING.....Scottdale, Pa.
WILLIAM THOMPSON LIVELY.....Charleston
DENNIS SELKIRK MCINTYRE.....Hepzibah
FREDERICK BRUCE MORGAN.....Ravenswood
GEORGE HENRY PORTMAN.....Rochester, Pa.
ROBERT SIDNEY REED.....Boothsville
A. B., West Virginia University, 1911
GLENN FOSTER WILLIAMS.....Clarksburg

Bachelors of Science in Civil Engineering

FREDERICK EARLE MEALY.....Morgantown
EVERETT CLERC SMITH, JR.....Ravenswood
GEORGE EDMOND TAYLOR.....Morgansville

Bachelor of Science in Mechanical Engineering

EDWARD JAMES BAUGHER.....Titusville, Pa.

Bachelors of Science in Electrical Engineering

JOSE DE ALMEIDA KIRK.....Wheeling
WILLIAM HENRY STAREUCK.....Atlanta, Ga.

Bachelors of Science in Agriculture

DELFORD LEE COTTRILL.....Normantown
RICHARD WILLIAM JOHNSON.....Union
WILLIAM MOUNT SIVEY.....Morgantown
B. S., West Virginia University, 1903

Artist's Diploma, Violin

OLIVE MAE WAMBAUGH.....Morgantown

Teacher's Certificate, Piano

RUTH BATTEN.....Morgantown
GRACE AGNES BLENKO.....Clarksburg
MARY MILDRED BOWER.....Morgantown
UNA VIRGINIA PEARCY.....Blandville

Certificate in Elocution

ALEXANDER MILLER.....Morgantown

PRIZES AND HONORS

The Regents' Prize in Composition

STELLA LUCILE CARDEN, *Freshman*.....Covington, Va.

The Morris Prize in Civil Engineering

GEORGE EDWARD TAYLOR, *Senior*.....Morgansville

Phi Beta Kappa

The following seniors in the College of Arts and Sciences were elected members of the Phi Beta Kappa Society:

ELEANOR EMMA HERRING.
VAN DAVIS MCMINN.
IVAN VAUGHAN DETWEILER SHUNK.
HUNTER WHITING.

LIST OF STUDENTS

STUDENTS ENROLLED IN THE COLLEGES.

NOTE:—The following list includes the names of all students enrolled in the various colleges of the University, arranged in alphabetical order. Following each student's name and address are given his class, course of study which he is pursuing, or the degree for which he is a candidate. The word freshman, sophomore, etc., following the student's name indicates his rank on the first day of November, 1912. Students whose names are marked with an asterisk (*) are ranked as freshmen, but are conditioned in one or more preparatory subjects. Students marked as sub-freshmen or special students are classified in accordance with the regulations found on pages 26 and 27 of this Catalogue. Students enrolled in the Division of Military Science are designated by a (c) following the name.

Adams, Charles Sisson (c)	Morgantown	Jun., B.S.E.E.
Adams, John Ross	Morgantown	Sen., B.S.E.E.
Albright, Erbie Clare	Morgantown	Special A. & S.
Alderson, Anna Mary	Summerville	*Fr., A.B.
Alger, Katherine	Wheeling	Soph., A.B.
Allen, James Cornwall (c)	St. Marys	Sen., B.S.M.E.
Allen, Amy	Troy, Ohio	Grad. A. & S.
Allen, Glen Frank (c)	Parkersburg	Fr., B.S.C.E.
Allman, John Isaac (c)	Jane Lew	Fr., B.Sc.Agr.
Ammons, Nellie Pearl	Rice's Landing, Pa.	*Fr., B.Sc.
Anderson, Bessie Jones	Parkersburg	Grad. A. & S.
Andris, Irene Marie	Morgantown	Grad. A. & S.
Ankrom, Leslie (c)	New Martinsville	Fr., B.Sc.Agr.
Arbenz, George Herman	Wheeling	Sub. Fr., A. & S
Arnett, Daisy Caroline	Fairmont	Soph., A.B.
Arnold, Edna	Weston	Jun., A.B.
Arnold, Jesse Lloyd (c)	Moundsville	Soph., LL.B.
Ash, Ray (c)	Morgantown	Fr., A.B.
Ash, Francis Guy (c)	Morgantown	*Fr., A.B.
Ash, Irvin Oda	Middlebourne	Sen., A.B.
Ashburne, Clarence Marcellus	West Union	Fr., B.Sc.Agr.
Ashby, Frank Graybill (c)	Morgantown	*Fr., A.B.
Ashworth, Benjamin Harrison (c)	Bluefield	Fr., A.B.
Ashworth, David Draugher	Beckley	Sub. Fr., A.B.
Atticks, Robert Martin	Steelton, Pa.	Fr., A.B.
Ayers, George Raymond (c)	Barboursville	Soph., LL.B.
Ayuso, Romulo Hemeteru	Yabucoa, Puerto Rico	Spec. A. & S.
Bachman, Alma Elizabeth	Wheeling	Fr., A.B.
Bachman, Carl George	Wheeling	Grad. 1st. Yr. La
Bailey, Harvey Clarke	Glenville	Fr., A.B.
Bailey, Garland Howard (c)	Giatto	Soph., B.Sc.
Bailey, Sebie	Buckhannon	Sen., A.B.
Baker, Virginia May	Huntington	Soph., A.B.

Ballard, Elbert Edmonds	Peterstown	2nd. Yr. Law
Barbe, Leslie Arthur (c)	Mapletown	Sub. Fr., A.B.
Barnes, Walter Kenneth (c)	Fairmont	2nd. Yr. Law
Barnes, Sarah Alice	Bruceton Mills	Sp. A. & S.
Barnett, Joseph, Jr.	Clarksburg	Sen., A.B.
Barron, Frank John	St. Marys	2nd. Yr. Law
Bartlett, Howard Robert	Fairmont	Sen., B.Sc.
Bates, Robert Lee	Kearneysville	Jun., A.B.
Baumgartner, Hugh Homer	Morgantown	Jr., A.B.
Beall, David Earle	Morgantown	Fr., A.B.
Beaumont, Catherine Elizabeth	Morgantown	Jr., B.Sc.
Bell, Jesse Homer	Auburn	*Fr., A.B.
Bellona, Levi Lewis	Kingwood	Sp. Eng.
Bent, Xenna Pearle	Morgantown	Soph., Med.
Bent, Laura Gertrude	Elkins	Fr., A.B.
Berisford, Halley Earl	Captina	Soph., B.Sc.
Berry, William Kelley	Sutton	Fr., B.Sc.
Bierer, Joseph (c)	Morgantown	Jr., B.S.C.E.
Bills, Henry Wilson Augustus. (c)	Wheeling	2nd. Yr. Law
Bishop, Charles Eric (c)	Morgantown	Sen., A.B.
Bishop, Ernest Edward	Morgantown	Fr., B.Sc.
Bjornson, Edwin (c)	Morgantown	Fr., B.S.M.E.
Blair, Thomas Jackson	Weston	Jr., B.S.C.E.
Blankenship, Lucien Walker	Huntington	Jr., A.B.
Blankensop, Robert Edwin (c)	Moundsville	Fr., A.B.
Blosser, Herman George (c)	Smithfield, Pa.	Fr., B.S.M.E.
Bloyd, William McCune (c)	Moundsville	Fr., B.Sc.
Bock, John Lynde	Farmington	Fr., B.S.E.E.
Bonar, Martin Loxley (c)	Moundsville	Gd. 1st. Yr. Me
Bond, Helen Lee	Washington, Pa.	Fr., A.B.
Bonner, Harrie Russell	Morgantown	Sen., A.B.
Booher, Wilford Jackson Weber	Moundsville	Jr., A.B.
Boone, William Harry (c)	Ronceverte	Soph., B.Sc.
Bord, Harold Glen (c)	Grafton	Fr., B.Sc.
Boreman, William Russell (c)	Middlebourne	Fr., B.S.M.E.
Boseley, Bruce Hamilton	Keyser	Fr., B.Sc.
Boughner, Jennie Delawder	Morgantown	Grad. A. & S.
Bower, Mary Mildred	Morgantown	Fr., A.B.
Bowles, Weikle Emaline	Milton	Fr., A.B.
Bowlby, Alice	Natoma, Kan.	Fr., A.B.
Boyles, Melville Peter	Philippi	Sen., A.B.
Brady, Troy Arden	Gould	Fr., A.B.
Bragonier, Arthur Taylor (c)	Shepherdstown	Jr., B.S.C.E.
Brannan, Dorsey (c)	Grafton	Soph., B.Sc.Agr.
Braun, Max Mayer (c)	West Newton, Pa.	Sub. Fr., A.B.
Bray, Charles McChesney	Elkins	1st Yr. Med.
Brewster, Frank McCain (c)	Weston	Fr., B.S.M.E.
Briers, Eugene Hume (c)	Bellepoint	Fr., B.S.E.E.
Broadwater, Ralph Archer (c)	Sistersville	Fr., B.Sc.
Brooke, Harry	Bridgeport	Fr., B.Sc.Agr.
Brooks, Leslie	Buckhannon	Soph., B.S.C.E.
Brown, Robert Ludington, Jr.	Parkersburg	3rd. Yr. Law
Brown, Nelle	Moundsville	Soph., A.B.
Brown, Howard Condit (c)	Charleston	Sen., B.S.E.E.

Brown, Philip Edward (c)	Morgantown	Fr., A.B.
Brunetti, Mender Thomas (c)	Curwensville, Pa.	Fr., A.B.
Buchanan, Margaret	Morgantown	Grad. A. & S.
Burdett, James Sidney (c)	Grafton	*2nd. Yr. Law
Burdett, Thomas Swaar (c)	Charleston	Fr., B.S.C.E.
Burdette, William Alexander	Ona	Sen., B.S.C.E.
Burdette, Everett Daniel (c)	Ronceverte	Fr., B.Sc.Agr.
Burley, Ova Milton (c)	Davis	Fr., B.Sc.
Burnside, Don Gillham (c)	Point Pleasant	Sub. Fr., B.S.E.
Burrell, Lewis Glenn (c)	Weston	Sen., B.S.C.E.
Bush, Jessie Lee	Grafton	Jun., A.B.
Bushnell, Almon Woodford (c)	Strafford, Vermont	*Fr., A.B.
Butler, Ruth Estella	Cumberland, Md.	Fr., B.Sc.
Caddell, Elmer Edgar	Albright	Sub. Fr., A.B.
Cady, Stanton Holme (c)	Morgantown	Soph., B.S.
Cady, Margaret	Morgantown	*Fr., A.B.
Caldwell, James Lewis, Jr.	Huntington	Sen., LL.B.
Calvert, Charles Hukill	Morgantown	Fr., A.B.
Campbell, George Ambrose (c)	Charleston	Soph., B.Sc.Agr
Carden, Stella Lucile	Covington, Va.	Soph., A.B.
Carden, David Lamont	Zela	Soph., A.B.
Carter, Archie Boyd	Parkersburg	Sen., B.Sc.Agr.
Carney, Albert Carlton (c)	Charleston	Soph., B.S.M.E.
Carney, Naomi	Charleston	Fr., A.B.
Carpenter, Lewis Van (c)	Benwood	Fr., B.S.C.E.
Carroll, Alan Keyser (c)	Masontown	Sp. Agr.
Carroll, Helen Ida	Grafton	Fr., A.B.
Carter, Carl John (c)	Fairmont	*Fr., B.Sc.
Casto, Edna Lenore	Morgantown	Jun., A.B.
Casto, Ethel Blair	Morgantown	Jun., A.B.
Casto, Charles Clayton	Spencer	Sen., B.Sc. & 1st. Yr. Med.
Cather, Carl Henry (c)	Morgantown	Soph., B.S.M.E.
Cavendish, Fred Clinton	Leander	Fr., A.B.
Chambers, Vannetta	Martinsburg	Fr., A.B.
Chapman, John Martin	Servia	Soph., B.Sc.
Chenoweth, Fred Myer (c)	Philippi	Fr., A.B.
Chidester, Robert Wellington (c)	Weston	Fr., A.B.
Childers, Asher Theodore	Salem	Sen., B.Sc.
Church, Nina	Morgantown	Fr., A.B.
Clark, Robert	Hemlock	Grad. A. & S.
Clark, Kenna (c)	Fairmont	Fr., B.Sc.
Clark, John William	Morgantown	Fr., A.B.
Clayton, Sarah Verona	Rivesville	Soph., A.B.
Clayton, Harry Paul (c)	Wheeling	Soph., A.B.
Clendenen, Charles Cole (c)	Durbin	Fr., B.S.E.E.
Coffindaffer, Ernest Wayne	Jane Lew	Soph., B.Sc.Agr
Cohen, Charles	Charleston	Sen., LL.B
Cokeley, Addie May	Morgantown	Fr., A.B.
Cokeley, Annie Lena	Morgantown	Fr., A.B.
Cole, Robert Lee	Huntington	Grad. A. & S.
Colebank, George Henry	Grafton	Sen., A.B.
Coleman, Leo Anthony	Wheeling	Jun., LL.B.
Compton, Eva Day	Morgantown	*Fr., A.B.

Compton, Elma Pearl	Morgantown	Sen., A.B.
Compton, Benjamin Leroy (c)	Philippi	Sp. Law
Compton, Alfred Fillmore (c)	Moundsville	Soph. Med.
Conaway, James Lawrence	Barrackville	3rd. Yr. Law
Conley, Philip Mallory	Charleston	Sen., B.Sc.
Conner, Frank Eugene (c)	Charleston	*Fr., A.B.
Connor, James Michael	Ennis, Texas	Fr., B.S.E.E.
Conrad, Bernard Roy	Sand Fork	Jun., A.B.
Cook, Alice Virginia	Cameron	Sub. Fr., A.B.
Coombs, Wayne Francis	Morgantown	Soph., B.S.C.E.
Coombs, Forest Pembrook	Morgantown	Soph. Med.
Cooper, Willie	Tanner	Fr., A.B.
Cooper, Evelyn Marie	Cameron	Soph., A.B.
Cooper, Robert Lee (c)	Parkersburg	Fr., A.B.
Cooper, Russell Hoy (c)	Parkersburg	Fr., A.B.
Copley, James Walter	Crum	Sp. Law
Core, Rebecca	Cassville	Sen., B.Sc.
Cormany, William John Benjamin (c)	Davis	Fr., A.B.
Cornelius, George Baxter (c)	Wellsburg	Fr., B.Sc.
Cox, Jennie	New Martinsville	Fr., B.Sc.
Cox, James Carl	Cox's Mills	Fr., B.Sc.Agr.
Crane, Florence McCoy	Morgantown	Fr., A.B.
Crane, Harley Lucius (c)	Morgantown	Sen., B.Sc.Agr.
Creel, Thomas Hardin (c)	Kanawha Station	Soph., B.Sc.
Cronin, Daniel Francis	Richwood	Sub. Fr., B.S.E.E
Cronin, Harry Raymond	Richwood	Fr., A.B.
Curry, Harry (c)	Grafton	Fr., A.B.
Curtiss, Everett McChesney (c)	Huntington	Fr., B.S.E.E.
Dadisman, Andrew Jackson	Grafton	Sen., B.Sc.Agr.
Daniels, Charles Monroe (c)	Parkersburg	*Fr., A.B.
Darst, Moses McKay (c)	Charleston	Fr., A.B.
Davies, Garfield	Morgantown	Sp. A. & S.
Davis, Orin Hoover	Charleston	Soph., B.Sc.
Davis, Gail	Morgantown	Grad. A. & S.
Davis, Richard Earle (c)	Morgantown	Jun., A.B.
Dawson, Joseph Power	Charleston	Soph., B.S.E.M.
Dean, David McConaughey	Morgantown	Jun., B.S.C.E.
Deem, Fred Blaine	Parkersburg	Jun. L.L.B.
Dexter, John (c)	Morgantown	Soph. B.Sc.Agr.
Dickey, Samuel Scott	Waynesburg, Pa.	Soph. B.Sc.
Dilcher, Henry Stanford (c)	Charleston	Soph. B.S.M.E.
Dille, John Adams	Morgantown	Soph. B.Sc.
Dodd, David Rollin (c)	Hedgesville	Sen. B.Sc.Agr.
Dodd, Maurice Ropp (c)	Hedgesville	Sen. A.B.
Donnally, Edward Thomas (c)	Charleston	Soph. B.Sc.
Dorsey, Henry	Pearl	Sen. B.Sc.Agr.
Dougan, Nelle Luise	Millersburg, Ohio	Special A. & S.
Douthat, Dana Glenn	Morgantown	Special A. & S.
Downey, Clark John (c)	Smithfield, Pa.	*Fr. B.S.E.E.
Doxsee, Harry LeGrande (c)	Bay Shore, N. Y.	Jun. B.S.C.E.
Drake, Leslie Giles (c)	Davis	Soph. Med.
Drennen, Mary Effie	Spencer	Soph. A.B.
Duling, Hugo Bruce (c)	Morgantown	Sub. Fr. A.B.

Duling, Orten Everett (c)	Morgantown	Jun. A. B.
Duling, Irl Noel	Morgantown	Soph. A.B.
Duncan, Carl Ray (c)	Uffington	Soph. B.S.C.E.
Dunn, Jessie Bernice	Parkersburg	Fr. B.Sc.
Dunbie, Robert William (c)	Clarksburg	Fr. A.B.
Duvall, Frank Clifton	Camden	*Fr. A.B.
Eades, Carl Grady (c)	Lowell	Fr. B.Sc.Agr.
Eagan, Fannie	Ronceverte	Grad. A. & S.
Easley, Garland Holbrook (c)	Bluefield	Soph. B.S.M.E.
Easley, John White (c)	Bluefield	Fr. A.B.
Edmiston, Andrew, Jr.	Buckhannon	Soph. A.B.
Elder, Mary Ellen	Morgantown	Special A. & S.
Elliott, Paschol Albert (c)	Grafton	Fr. B.S.E.E.
Elliott, Anne Naomi	New Martinsville	Jun. B.Sc.
Ervin, Dana Robert	Elkins	Jun. B.Sc.Agr.
Evans, Sallie	Grafton	Soph. A.B.
Evans, James Miller (c)	Morgantown	Fr. A.B.
Ewald, Margaret Louise	Mt. Savage, Md.	Soph. B.Sc.
Farmer, John Dunn	Bolt	Soph. A.B.
Fast, Herman Otha	Flemington	Fr. A.B.
Feller, Richard Roeder (c)	Martinsburg	Sen. B.S.C.E.
Ferguson, Harry (c)	Holliday's Cove	Soph. B.S.M.E.
Fidler, Raymond Elmore (c)	Harrisville	Fr. A.B.
Fidler, Leland Willis (c)	Harrisville	Fr. B.S.M.E.
Fike, Arthur	Morgantown	Jun. B. Sc.
Finch, Leonard Lloyd	Shinglehouse, Pa.	2nd Yr. Law
Finlayson, William Wallace (c)	Shinnston	Fr., B.Sc.
Fisher, Margaret	Sutton	Sen. A.B.
Fisher, George Prince	Sutton	Fr. B.S.M.E.
Fisher, Ruth Mary	Morgantown	Soph. A. B.
Fitch, Estella Alice	Huntington	Sen. A.B.
Fleming, Goldie Mae	Morgantown	Fr. A.B.
Fleming, Walter Wolf (c)	Williamsport, Md.	Soph. B.S.E.E.
Fleming, Arlington	Fairmont	Jun. B.Sc.
Fleming, Daniel Benjamin	Ravenswood	Fr. A.B.
Florence, Ruby Irene	Parkersburg	Fr. A.B.
Floyd, Lulu Ann	Sutton	Fr. A.B.
Frampton, Lee Frank	New Kensington, Pa.	Sub. Fr. A.B.
Frazier, Lester Elwin (c)	Ronceverte	Fr. A.B.
Freudenberger, Elmer May (c)	Charleston	2nd Yr. Law
Fries, Laura Evangeline	Berkeley Springs	Fr. A.B.
Fulcher, Paul Milton (c)	Morgantown	Fr. A.B.
Furbee, Flora Louise	Middlebourne	Soph. A.B.
Gardiner, Mabel Henshaw	Martinsburg	Sen. A.B.
Garrett, Wade Hampton	Clarksburg	Fr. A.B.
Gaskill, Virginia	Fairmont	Fr. A.B.
Gayley, Charles Thornton	Richwood	Sub. Fr. B.Sc.
George, Enoch Franklin	Red Creek	Sen. A.B.
Gibson, Alva Jason (c)	Sutton	Jun. A.B.
Gill, Charles Clifton (c)	Covington, Tenn.	Fr. B.Sc.
Gist, Russell Henderson (c)	Wellsburg	Jun. B.Sc.Agr.

Gist, Maria Anna	Wellsburg	Fr. B.Sc
Givens, William Wiley (c)	Keenan	Soph. A.B.
Givens, Tula Rose	Keenan	Special A. & S.
Glover, John Franklin (c)	Morgantown	Soph. A.B.
Goff, William Rush	Spencer	Sen. B.Sc. and 1st Yr. Med.
Gorby, Clyde Otha	Moundsville	Soph. M.D.
Gordon, Wiliam Ralph (c)	Wheeling	Soph. BSc.Agr.
Gould, Sidney Ross	Abbott	Soph. LL.B.
Graham, Thomas Edward, Jr.	Parkersburg	Jun. A.B.
Green, Ethel Averil	Morgantown	Grad. A. & S.
Greenan, Edna Margaret	Moundsville	Soph. A.B.
Greene, Harry Horten	Bridgeport	Sen. B.Sc.Agr.
Greer, Guy Edward (c)	Pikeville, Ky.	Soph. B.S.E.M.
Griffith, Luther Oscar (c)	Huntington	Soph. B.S.C.E.
Grose, Sylvester Carson	Sago	Grad. A. & S.
Grose, John Edwin (c)	Sutton	*Fr. A.B.
Grossman, Morris (c)	Follansbee	Fr. B.Sc.
Groves, Artie Russell (c)	Cuzzart	Soph. A.B.
Guiher, James Morford (c)	Smithfield, Pa.	Sub. Fr. A.B.
Gunnoe, Otway Marshall	Crany	Fr. B.Sc.
Guseman, Virginia Ruthe	Morgantown	Fr. A.B.
Guthrie, James Ray	Morgantown	Fr. B.Sc.Agr.
Haaren, Paul Joseph	Brooklyn, N. Y.	*Fr., B.Sc.Agr.
Hackney, Blanche	Morgantown	Special A. & S.
Hackney, Lillian Grey	Morgantown	Fr., A.B.
Hagan, Arthur Michael (c)	Morgantown	Fr., B.S.C.E.
Hagen, Julian Lamar (c)	Huntington	Soph., A.B.
Hager, Daniel Irvin	Huntington	2nd. Yr. Law
Hale, Ruth Regina	Weston	Jun., A.B.
Hall, Margaret	Proctor	Soph., B.Sc.
Hall, Frank	Proctor	Sen., B.Sc.
Hall, Anderson Wade (c)	Weston	2nd. Yr. Law
Hall, Jessie	Morgantown	Soph., A.B.
Hall, Kent Bruce	New Martinsville	Special Law
Halstead, Velper Herbert	Mt. Lookout	1st. Yr. Law
Hamilton, Estelle	Fairmont	Soph., A.B.
Hamilton, Elvin Andrew (c)	Richwood	Soph., LL.B.
Hamilton, Dale Hunt (c)	Mannington	Soph., B.Sc.Agr.
Hamilton, Russell Lee (c)	Mannington	Fr., A.B.
Hanke, Henry Morris (c)	Wheeling	Fr., A.B.
Hanley, Stephen Cletus (c)	Elkins	Sub. Fr., A.B.
Harbert, Guy Morlan	Morgantown	Special Eng.
Hardesty, Charles Howard	Mannington	Soph., LL.B.
Hardman, Ira Sobisca	Horner	Fr., A.B.
Harm, Grace Lois	Huntington	2nd. Yr. Law
Harper, Howard Morrill (c)	Elkins	Jun., B.S.E.E.
Harr, Herbert Milton	Buena	Jun., A.B.
Harrison, Samuel Robertson	Clarksburg	Jun., LL.B.
Hartley, Charles Henry	Cottageville	Jun., B.Sc.Agr.
Hartman, Lute Burner (c)	Clarksburg	Soph., A.B.
Hathaway, Sylvester Erwin (c)	Morgantown	Jun., Med.
Haught, Austin Miles	Atwood	Fr., A.B.
Haymond, Thomas Paul (c)	Fairmont	Sub. Fr., B.S.M.E.

Hays, Roy	Friendly	Soph., M.D.
Headlee, Herbert Graden (c)	New Martinsville	Soph., B.S.M.E.
Heavner, Marguerette Gertrude	Elkins	Fr., A.B.
Heflin, Neal Minter (c)	Grafton	Sen., B.S.M.E.
Heiskell, Edgar Frank (c)	Morgantown	Soph., Med.
Heller, Edward Jacob	Barboursvillee	Special A. & S.
Henderson, Byron Stanley (c)	Moundsville	Fr., A.B.
Henrie, Howard (c)	Williamstown	Fr., B.Sc.Agr.
Henry, Robert McKenzie (c)	Fairmont	Fr., A.B.
Hern, Lillian Mabel	White Sulphur Springs	Fr., A.B.
Herring, Carrie Alice	Kingwood	Soph., Med.
Hersey, Rexford Brammer (c)	Guyandotte	Soph., A.B.
Hervey, Mary Amanda	Elm Grove	Fr., A.B.
Hiland, Wayman Leonidas	Matoaka	Soph., Med.
Hildreth, Aubrey Clare (c)	Mannington	Fr., B.Sc.Agr.
Hill, James Marrow	Lexington, Va.	*Fr., B.S.
Hill, Lorna Mabel	Shepherdstown	Fr., A.B.
Hite, Evelyn Pratt	Morgantown	Grad. A. & S.
Hodges, Harry Curtis	Keyser	Jun., B.S.M.E.
Hodges, Charles Edward	Morgantown	Grad. A. & S.
Hoge, Elizabeth Stewart	Waynesburg, Pa.	Sub. Fr., A.B.
Hogg, George William	Salem	Grad. A. & S.
Hogg, Robert Lynn	Pt. Pleasant	Sen., A.B.
Hogue, Jany Phelan	Waynesburg, Pa.	Grad. A. & S.
Holden, Theodore	Harlin	Soph., A.B.
Holton, Linville Moran	Morgantown	Jun., A.B.
Hoover, William Henry (c)	Harrisville	Fr., B.S.E.E.
Hoover, Lawrence Grant	Harrisville	Jun., A.B
Hormell, Duane Couzens (c)	Morgantown	Soph., B.S.E.E.
Hoskins, Stephen Paul (c)	Weston	Sen., B.S.M.E.
Hoult, Ethel Louise	Fairmont	Jun., A.B.
Hoylman, Charles Houston	Union	*Fr., A.B.
Huffman, Charles Ray (c)	Fairmont	Soph., B.S.E.E.
Humes, Harry Oliver	Mannington	Sen., B.S.E.E.
Hunt, Thomas Edward	Tunnelton	*Fr., A.B.
Hupp, Edwin Erle	Parkersburg	Jun., B.Sc.Agr.
Hutchinson, Frank Ehlen	Fairmont	Fr., B.S.E.M.
Hutchison, Ralph Brenton (c)	New Martinsville	Soph., A.B.
Hypes, George William	Poe	Fr., B.Sc.Agr.
Hypes, Cora Jackson	Morgantown	Soph., A.B.
Hypes, James Lowell	Morgantown	Fr., A.B.
Hyre, Lycurgus	Frenchton	Fr., A.B.
Israel, Mary Marguerite	Clarksburg	Fr., A.B.
Jacob, John Jeremiah, Jr. (c)	Short Creek	Jun., B.S.C.E.
Jamison, Fred Mueller	Fairmont	Jun., B.Sc.
Jarrett, Hillard Wesley (c)	Charleston	Jun., B.S.M.E.
Jaynes, Russell Martin (c)	Shinnston	Fr., B.S.E.E.
Jemison, Lawrence Lee	Middlebourne	Sen., B.S.C.E.
Jenifer, John Morris (c)	Morgantown	*Fr., A.B.
Jennings, Charles Irwin (c)	Morgantown	Soph., B.S.C.E.
Johnson, Kate	Bluefield	Fr., A.B.
Johnson, Virgie	Bluefield	Fr., A.B.
Johnson, Lulu May	Union	*Fr., A.B.
Jolliffe, Oliver Paul	Morgantown	Fr., B.S.E.E.

Jolliffe, Charles Byron	Morgantown	Jun., B.Sc.
Jones, William Henry	Richwood	Soph., B.Sc.Agr.
Jones, John Paul	Sistersville	Jun., B.Sc.
Juergens, Eli	Sutton	Fr., A.B.
Kaltenbach, Earl George Lawrence (c)	Wheeling	Sen., B.S.C.E.
Kaltenbach, Charles Joseph (c)	Wheeling	Soph., B.S.C.E.
Keadle, Okey Paul (c)	Williamstown	*Fr., A.B.
Kearney, Katharine	Kearneysville	Sen., B.S.
Kearns, Michael Joseph (c)	Hundred	Fr., B.S.E.E.
Keatley, Edwin Emerson (c)	Charleston	*Fr., A.B.
Keenan, Marl (c)	Bowlby	Fr., B.Sc.
Keller, Arch Loren	Middlebourne	Sen., B.Sc.
Kelley, Samuel Allen (c)	Morgantown	Sen., B.Sc.
Kersting, Eugene Josiah (c)	Clarksburg	Soph., B.S.M.E.
Kilgore, Harlie Martin	Morgantown	2nd. Yr. Law
Kimble, Brison Edwin	Morgantown	Soph., B.Sc.
Kincade, Cora Eleanor	Fairmont	Fr., B.Sc.
King, Benjamin Walter	Morgantown	Grad. 1st. Yr. Law
King, Benjamin Franklin	Morgantown	Sen., A.B.
Kinnaird, Lawrence	Williamstown	Jun., A.B.
Klein, Frances Viola	Grafton	Fr., A.B.
Kline, Harvey Edgar (c)	Monongah	Soph., B.S.E.E.
Knabenshue, Brace Sloan (c)	Clay	Fr., A.B.
Knapp, Ulysses Austin (c)	Fairmont	Sub. Fr., A.B.
Knapp, John Oliver	Morgantown	Soph., B.Sc.Agr.
Knight, Ernest Everett	Morgantown	Jun., A.B.
Koon, Cline Morgan	Monongah	Jun., B.Sc.
Kumler, Louise Hutcheson	Carmichaels, Pa.	Sen., A.B.
Kunkle, Josephine Margaret	Morgantown	Grad. A. & S.
Laidley, Bradford Beuhring	Charleston	Jun., B.Sc.
Lambdin, Janet Denham	Montgomery	Fr., A.B.
Lambdin, Vera	Montgomery	Fr., A.B.
Lambert, Oscar Doane	Red Creek	Soph., A.B.
Lambert, Fred Bussey	Barboursville	Sen., A.B.
Lanham, Lula May	Grafton	Fr., A.B.
Lantz, Pierce Byron	Blacksville	Grad. Law
Larkin, Edward James	Wheeling	Sub. Fr., A.B.
Law, Russell Lowell (c)	Lawford	Fr., B.Sc.Agr.
Lawrence, Linwood Theodore	Morgantown	Jun., B.Sc.
Lawrence, Paul Stamp	Harrisville	Sub. Fr., A.B.
Lawyer, Herbert Randolph (c)	Berkeley Springs	Sub. Fr., A.B.
Lazzelle, Donald Grant (c)	Morgantown	*Fr., A.B.
Leatherwood, Carl Paxton (c)	Wheeling	Special Law
Lee, William Louie (c)	Bluefield	Sub. Fr., A.B.
Leidig, Joseph Guy	Steelton, Pa.	Fr., A.B.
Lemon, Foster David	Terra Alta	*Fr., A.B.
Lemley, Fred Leigh (c)	Burton	Sen., A.B.
Leu, Raymond Hansford (c)	New Martinsville	Soph., M.D.
Lewellyn, Frank Bowman	Morgantown	Grad. A. & S.
Lewis, Eunice	Buckhannon	Special A. & S.
Linn, John Hamilton	Charleston	Fr., A.B.
Linton, William Lloyd (c)	Wellsburg	Jun., B.Sc.
Lively, James Prince (c)	Charleston	Soph., B.S.E.E.
Long, Eugene Homer (c)	Bluefield	*Fr., B.Sc.

Longanecker, Clarence	Scottdale, Pa.	Fr., B.S.E.E.
Loudin, Sallie Fogg	Morgantown	Special A. & S.
Lovell, William Warner	Troy	Fr., A.B.
Lowe, Robert Paul (c)	Morgantown	Fr., B.Sc.Agr.
Lowe, John Moore (c)	Morgantown	Fr., B.Sc.Agr.
Luzader, Everett	Auburn	*Fr., B.Sc.
Madera, John Reed (c)	Morgantown	Fr., B.S.M.E.
Madigan, Frank	Morgantown	Soph., B.S.E.E.
Mahan, Charles Edgar, Jr. (c)	Belva	2nd. Yr. Law
Manear, Lillian Ruth	Morgantown	Soph., A.B.
Manley, Madison West (c)	Fairmont	Fr., B.Sc.Agr.
Manley, Percy Cyrus	Monongah	Jun., B.Sc.Agr.
Marr, Harold Burl (c)	Mannington	Sen., A.B.
Marshall, Ralph Sherman	Morgantown	Jun., B.Sc.
Marshall, Anna Mary	Morgantown	Soph., B.Sc.
Marstiller, Jeanne	Elkins	Jun., A.B.
Martin, Truman Morris	Newell	Sen., A.B.
Martin, Lloyd Daniel	Lewis	Sub. Fr., A.B.
Martin, Harriett	Shinnston	Fr., A.B.
Martin, Cyrus Howard	Thomas	*Fr., B.Sc.
Matheson, Earl Scarborough (c)	Wadesboro, N. C.	Fr., A.B.
Mathison, George Joseph, Jr. (c)	Wheeling	*Fr., A.B.
Mathison, John Joseph	Wheeling	Fr., A.B.
Mattson, Ellen	Morgantown	Soph., A.B.
May, John Dorilas	Dovesville, Va.	Sen., A.B.
McCaffry, Pearl	Berkeley Springs	Fr., A.B.
McClung, Keener (c)	Morgantown	Soph., A.B.
McCoy, Fred Jefferson (c)	Sistersville	Fr., A.B.
McCreery, Clara Belle	Morgantown	Soph., B.Sc.
McCrum, Harold Bernard	Aurora	Sen., LL.B.
McCulloch, Benjamin Hunter (c)	Bluefield	*Fr., A.B.
McCuskey, Charles Fletcher (c)	McMechen	Fr., A.B.
McCuskey, Frank Crim	McMechen	Jun., B.Sc.Agr.
McCutcheon, Wilford Lee	Reedy	Sen., A.B.
McDonald, Brown	Morgantown	Sen., A.B.
McDonald, Pearce Naylor	Morgantown	Grad. A. & S.
McDowell, Charles Wesley (c)	Junior	Soph., B.S.C.E.
McGarry, Edmund Daniels (c)	Shenandoah Jct.	Sen., A.B.
McGinnis, Howard Justus	Morgantown	Jun., B.Sc.
McIntyre, Dennis Selkirk	Hepzibah	Sen., LL.B.
McIntyre, Leslie Playford	Middlebourne	Fr., A.B.
McLaughlin, Hubert Lynn (c)	Hollidaysburg	Fr., B.S.E.E.
McMillen, Herbert	Masontown	Jun., B.Sc.
*McMinn, Thomas Roach	Morgantown	Grd. 2nd. Yr. Law
McNeour, William Vernon	Lahmansville	Grd. 2nd. Yr. Law
McWhorter, Louis Edwin (c)	Charleston	Soph., LL.B.
Means, Guy Goffe	Grafton	Jun., B.Sc.Agr.
Melcher, George Woodring (c)	Bluefield	*Fr., B.Sc.
Meredith, Kate	Morgantown	Soph., A.B.
Merritt, Harold Warner (c)	Lawton	Fr., B.S.M.E.
Miller, Earl Lazier	Morgantown	Jun., B.S.C.E.
Miller, Roy Frank (c)	New Martinsville	Jun., B.Sc.

*Died, December 9, 1913.

Miller, Percia Eugene (c)	Wheeling	2nd. Yr. Law
Miller, Joseph Shields (c)	New Cumberland	Jun., B.S C E.
Miller, James Henry	Hinton	Fr., A.B.
Minear, Irene	Davis	*Fr., A.B.
Mitchell, John Barton	Morgantown	Special M.E.
Mohler, Daniel Nathan	St. Albans	Jun., LL.B.
Montgomery, Allen Guy (c)	West Liberty	Jun., B.Sc.
Moon, Emily Elizabeth	Morgantown	Soph., B Sc.
Moran, Drury D.	Mullens	Special Law
Moreland, Eleanor Brown	Morgantown	Grad. A. & S.
Morgan, Mary Ellen	Morgantown	Special A. & S.
Morgan, Artha Daisy	Morgantown	Fr., A.B.
Morgan, Frank Madeira	Morgantown	Special A. & S.
Morrison, Robert Raymond (c)	Morgantown	Fr., A.B.
Morrison, William Byrne (c)	Sutton	Fr., A.B.
Morton, Ernest Victor (c)	Webster Springs	2nd. Yr. Law
Muldoon, Ralph Wycliffe	Morgantown	Jun., B.Sc.Agr.
Muldoon, Harry Ross	Morgantown	Fr., B.S.C.E.
Musgrave, Ervin Milton	Friendly	Fr., B.Sc.Agr.
Musgrove, Grover Cleveland	Fairmont	Jun., B.Sc.Agr.
Myers, Charles Everett	Huntington	Sen., B.Sc.Agr.
Nash, James Frank (c)	Alderson	*Fr., B.Sc.Agr.
Neff, Hazel Evelyn	Mt. Savage, Md.	Soph., B.Sc.
Nefflen, Myra May	Keyser	Soph., A.B.
Nelson, Max Carleton (c)	Woodman	Soph., B.S.E.E.
Nelson, Roy Ezekiel	Independence	Fr., B.S.C.E.
Newkirk, James Ellis (c)	Hedgesville	Fr., B.Sc.Agr.
Nichols, William Eugene (c)	Hinton	Fr., B.S.E.E.
Nicholson, Gillespie Blaine	Morgantown	Soph., A.B.
Niedermyer, John William (c)	Benwood	Soph., Med.
Nordeck, James Otis (c)	Jenningston	Fr., B.S.M.E.
Norman, Elsie Mae	Spencer	*Fr., A.B.
Noyes, Bradford, Jr. (c)	Charleston	Fr., B.S.E.E.
Nuzum, Callie Congie	Bridgeport	Soph., B.Sc.
Ogden, Dana Presley (c)	Charleston	Fr., B S E.E.
Orr, Mary	Triadelphia	Fr., A.B.
Orth, John Malcom (c)	Charleston	Fr., A.B.
Osborn, George Morris	Clarksburg	Jun., B.S.C.E.
Parrish, Ada Grace	Mannington	Soph., B.Sc.
Parrish, Kate	Mannington	*Fr., B.Sc.
Patterson, James Howard	Morgantown	Sen., A.B.
Patterson, Mabel Fay	Morgantown	Fr., A.B.
Patton, Mabelle Alma	Gap Mills	Special A. & S.
Peck, Elizabeth Tapp	Morgantown	Grad. A. & S.
Peck, Barnett Thomas	Athens	Fr., B.S.C.E.
Pedicord, Harry Lewis	Benwood	Soph., A.B.
Pennington, Edith	Morgantown	Fr., A.B.
Penwell, Charles Martin (c)	Parkersburg	*Fr., B.Sc.
Peoples, Guy	Cameron	Jun., A.B.
Pepper, Ralph (c)	Flemington	Fr., B.Sc.Agr.
Perkins, Harriett Cottrell	Cleveland, Ohio	Fr., A.B.

Phillips, Howard Troy (c)	St. George	Fr., A.B.
Phillips, George Francis	Belington	Sen., B.Sc.
Piggott, Harold William (c)	Parkersburg	*Fr., A.B.
Poland, Genevieve	Tunnelton	Fr., A.B.
Posten, Roscoe Parriott	Morgantown	Grd. 2nd. Yr. Law
Posten, Beulah Martha	Morgantown	*Fr., A.B.
Powell, Jonathan Corbley (c)	Federal	Fr., A.B.
Prettyman, Hugh Willard (c)	New Martinsville	Fr., B.Sc.Agr.
Price, Blanche Elizabeth	Morgantown	*Fr., A.B.
Prichard, Nellie	Fairmont	Fr., A.B.
Prince, Fred Guy (c)	Parkersburg	Fr., B.Sc.Agr.
Pritchard, Robert Howard (c)	Weston	Fr., A.B.
Purinton, Helen Elizabeth	Morgantown	Grad. A. & S.
Pyle, Frank James	Morgantown	Jun., A.B.
Quirk, Robert Emmett	Mannington	Jun., B.Sc.
Race, James Stuart	Fairmont	Jun., B.Sc.
Raemsch, Wallace Paul (c)	Elkins	Fr., B.S.E.E.
Rase, John Curtis	Davis	Jun., B.Sc.
Rahl, Marvin Edward	Greensburg, Pa.	Soph., B.S.E.E.
Rankin, Blanche Helene	Tunnelton	*Fr., A.B.
Raybeck, Ralph Jackson (c)	Morgantown	Fr., A.B.
Reger, Austin Clyde	Kanawha Station	Fr., A.B.
Reid, Roswell Schell	Uniontown, Pa.	Soph., B.Sc.
Reiner, Sara Mae	Morgantown	Soph., B.Sc
Rentsch, George Daniel, Jr. (c)	Wheeling	Fr., B.Sc.Agr.
Reynolds, Dan Howard	Boaz	Fr., A.B.
Reynolds, Lynden Eugene	Grape Island	Sen., B.Sc.Agr.
Richardson, Edwin Van	Shinnston	Jun., B.Sc.Agr.
Riddle, Walter (c)	Davis	Fr., A.B.
Riggle, John James (c)	Middlebourne	Fr., B.Sc.Agr.
Riggle, Lydia Amy	Middlebourne	Fr., A.B.
Riholdaffer, William Achman (c)	Charleston	Soph., B.S.E.E.
Riley, James Breinig (c)	Wheeling	Soph., A.B.
Robinson, Harold Lee, Jr. (c)	Uniontown, Pa.	Soph., B.S.C.E.
Robinson, J. French (c)	Elizabeth	Jun., B.S.C.E.
Rogerson, Beamis (c)	Moundsville	*Fr., A.B.
Rohr, Harley Downton	Alum Bridge	Fr., A.B.
Rokos, Marcalus (c)	Morgantown	Soph., B.S.E.E.
Romine, James Earl	Morgantown	Soph., B.Sc.Agr.
Romine, Elizabeth	Sistersville	Fr., A.B.
Ross, Hazel Brown	Morgantown	*Fr., A.B.
Royce, Polly Davis	E. Cleveland, Ohio	Soph., A.B.
Ruffner, Wilmans Alexander (c)	Charleston	*Fr., A.B.
Ruppel, Arthur Daniel	Lynn, Mass.	Fr., B.Sc.Agr.
Rusk, James Paul (c)	Charleston	Soph., B.Sc.
Russell, Helen Hack	Morgantown	Fr., A.B.
Ryan, Lonnie Watterson	Morgantown	Grad. A. & S.
Sander, Christian, Jr. (c)	Wheeling	Sen., B.S.E.E.
Savage, Eva LaVerne	Parkersburg	Soph., B.Sc.
Savage, James Allen (c)	Charleston	Special Law
Sayre, Watson Russell (c)	Evans	Sen., B.Sc.
Schaffer, Wilhelm	Charleston	Jun., B.S.E.E.

Schenck, Walter Pattison	Connellsville, Pa.	3rd. Yr. Law
Schramm, Henry Clyde (c)	Piedmont	Jun., B.S.E.E.
Shultz, Wiliam Henry	Morgantown	Grad. M.D.
Shultz, Dorothy Newell	Morgantown	Special A. & S.
Scott, Halleck McGinnis	Beckley	Special Law
Scott, Pearl	Pennsboro	Jun., A.B.
Seal, Gratta Earle	Terra Alta	*Fr., A.B.
Seckman, John Randolph (c)	Belmont	Jun., B.S.E.E.
Shanaberger, Watson B.	Buckhannon	Special C.E.
Shanklin, John Andrew	Charleston	Soph., B.S.M.E.
Sharp, Charles Letcher (c)	Frost	Special Law
Shawmon, Edgar Omer (c)	Masontown, Pa.	*Fr., A.B.
Sheppard, Bessie Gay	Walton	Fr., A.B.
Shirkey, William Fiske	Charleston	Sen., B.S.M.D.
Shriver, Forest Oral	Morgantown	Jun., B.S.M.E.
Shriver, Verella May	Morgantown	Fr., B.Sc.
Shroyer, Andrew Frederick	Philippi	Sen., A.B.
Shughrou, James Leo (c)	Ronceverte	Fr., B.S.C.E.
Shunk, Ivan Vaughan Detweiler	Morgantown	Grad. A. & S.
Shunk, John Heber Gerhart (c)	Morgantown	Fr., A.B.
Shunk, Ursula Cotta	Morgantown	Fr., A.B.
Shurtleff, Oliver	Fairmont	Soph., A.B.
Simon, Dalton Donovan (c)	Fairmont	Fr., B.S.E.M.
Sinsel, Charles Arthur	Grafton	2nd. Yr. Med.
Skinner, Dean Cook	Morgantown	Sen., B.S.E.E.
Smart, Frankie Marie	Montgomery	Soph., A.B.
Smith, Ajax Telemon	Princeton	3rd. Yr. Law
Smith, Carlyle Rector (c)	Parkersburg	Soph., A.B.
Smith, Edward Conrad	Weston	Jun., A.B.
Smith, Ida Wells	St. Marys	Soph., A.B.
Smith, James Clyde	Morgantown	Special Agr.
Smith, Jett Lambert	New Cumberland	Sen., B.Sc.Agr.
Smith, Rose Gertrude	Morgantown	*Fr., A.B.
Smith, Vivian Lloyd (c)	Morgantown	Soph., B.S.C.E.
Snider, Clifford Raymond	Spencer	Sen., A.B.
Snyder, Louis Clarke	Morgantown	Jun., B.Sc.Agr.
Soto, Manuel	Fajardo, P. R.	*Fr., B.Sc.
Spangler, Robert Clifton	Peterstown	Sen., A.B.
Speare, Wilma Carrie	Sherrard	Soph., A.B.
Spiker, Elma Etta	Masontown	Special A. & S.
Stanard, Olive Huffman (c)	Enon	Sen., B.Sc.Agr.
Starkey, Lawrence Vincent	Ravenswood	Soph., B.Sc.Agr.
Stealy, Bertha Ellen	Middlebourne	*Fr., A.B.
Steele, Harriett Effie	Newburg	Grad. A. & S.
Stemple, Isabel	Amboy	Fr., A.B.
Steorts, Aristotle (c)	Keyser	Soph., B.S.C.E.
Stewart, Melville	Glendale	Jun., A.B.
Stewart, John Lawrence	Morgantown	Sen., B.Sc.
Stewart, Edmond David, Jr. (c)	New Cumberland	Jun., A.B.
Stockdale, Charles Ellsworth	Burton	Fr., B.Sc.Agr.
Stone, Arthur Guy (c)	Pinchton	Fr., A.B.
Strange, William Wyatt (c)	Huntington	Fr., A.B.
Strickler, Robert Mann, Jr. (c)	Morgantown	Jun., A.B.
Stuckey, Harry Jeremiah	Hedgesville	Fr., A.B.

Sturgiss, Anna Gans	Morgantown	Sen., A.B.
Sullivan, John Lee (c)	Huntington	2nd. Yr. Law
Summers, Herbert Sidney (c)	Huntington	Soph., B.S.E.E.
Sutton, William Wallace	Reedsville	Soph., A.B.
Swann, Walter Clifford (c)	Huntington	Soph., B.Sc.
Swisher, Vesta Helen	New Martinsville	Fr., A.B.
Sydenstricker, Carl Raymond	Morgantown	Jun., B.S.M.E.
Sydenstricker, Lawrence Elbert	Morgantown	Soph., B.S.M.E.
Sydenstricker, Harry Sidney	Morgantown	Sen., B.Sc.Agr.
Talbott, James Paul (c)	Fairmont	Fr., B.S.C.E.
Tavenner, George Warth (c)	Parkersburg	Fr., A.B.
Taylor, Blake	Elkins	Sen., B.S.C.E.
Taylor, Joseph Earl	Morgantown	*Fr., A.B.
Taylor, Donald Clay (c)	Morgantown	Soph., B.S.E.E.
Templeton, Howard Johnston (c)	White Sulphur Springs	*Fr., B.Sc.
Teter, Charles Wilson	Philippi	Sen., A.B.
Thomas, Frederick Lionel (c)	Charleston	*Fr., A.B.
Thompson, James (c)	Morgantown	*Fr., A.B.
Thompson, Lonnie Vandiver	Three Churches	Special Law
Thrasher, Robert Guy (c)	Duo	Special Agr.
Thrasher, Albert Roscoe	Duo	Special Agr.
Timmons, Daisy Ella	Morgantown	Soph., B.Sc.
Tomblyn, William Edwin	Flemington	Special A. & S.
Toothman, Harry Franklin	Barracksville	Soph., A.B.
Trail, Grover Cleveland	Beckley	*1st. Yr. Law
Trimble, Samuel Alpha (c)	Wheeling	Special Agr.
Tucker, Mary Esther	Cassville	Fr., A.B.
Tuckwiller, Ross Homan (c)	Lewisburg	Soph., B.Sc.Agr.
Tuckwiller, Eugene Anthony	Lewisburg	Sen., B.Sc.Agr.
Turley, William Campbell (c)	Logan	Fr., B.Sc.
Turner, Bird Margaret	Moundsville	Jun., A.B.
Unkefer, Frederick Doyle (c)	Morgantown	Fr., B.S.C.E.
Unkefer, Isabell Ruth	Morgantown	Fr., A.B.
Vance, Walter	Roaring	Soph., A.B.
Vandervort, John Paul	Morgantown	Sen., B.Sc.Agr.
Vawter, Eugene Raymond (c)	Ansted	Fr., B.Sc.Agr.
Vermillion, Carrie	Hinton	Fr., A.B.
Wagner, Enola	Grafton	Jun., A.B.
Walker, Clyde LeGuage	Fayetteville	Jun., B.S.E.E.
Walker, Albert Kiddy (c)	Sutton	Fr., A.B.
Walters, Adam Everett	Clarksburg	Fr., B.Sc.Agr.
Walters, William Walter	Clarksburg	Fr., A.B.
Walters, Ota Gertrude	Morgantown	Jun., B.S.
Ward, John Balis, Jr.	Beverly	*Fr., A.B.
Warden, Paul Pelley (c)	Grafton	Soph., A.B.
Watters, Henry Clarence (c)	Huntington	Fr., B.S.E.E.
Weaver, James Plummer (c)	Morgantown	Soph., B.Sc.
Weaver, Sabina Olive	Morgantown	Soph., A.B.
Weimer, Bernal Robinson (c)	Port Royal, Pa.	Soph., A.B.
Wellen, Clyde William (c)	Burnsville	*Fr., A.B.
Wells, Ernest Blaine (c)	Morgantown	Fr., A.B.

Wells, Clarence Floyd (c)	Morgantown	Soph., B.Sc.
West, Irma Langley	Glenville	Soph., A.B.
West, Louis Barnes	Summersville	Special Law
Whaley, Ellis Burton	Finch	Fr., A.B.
Wheat, Harry Grove	Davis	Grad. A. & S.
Whelan, Joseph Morton	Bay Shore, N. Y.	Soph , B.S.E.E.
White, Ada Miriam	Grafton	Fr., A.B.
White, Wilson Henry Stout	Piedmont	Grad. A. & S.
White, Horance Laban	Spencer	Grad. A. & S.
Whiting, Charles Samuel (c)	Glenville	Soph., B.Sc.
Wiest, Paul Foreman	Rippon	Fr., A.B.
Wilcoxen, Max (c)	Huntington	Jun., B.S E.E.
Wilkin, James Ray	New Cumberland	Grd. 2nd. Yr. Law
Wilkinson, Joseph Edward	Princeton	Jun., B.S.
Williams, Francis Ewart	New Martinsville	*Fr., A.B.
Williams, Forest Grey	Charleston	Special Law
Wilmoth, Harold Deck (c)	Grafton	Fr., A.B.
Wilson, Chape	East Bank	Soph., A.B.
Wilson, Stanley Bruce	Moundsville	Sen., A.B.
Wilson, Adda Virginia	Sistersville	Sen., A.B.
Wilson, Herman Evans (c)	Grafton	Fr., A.B.
Wise, Charles Ernest (c)	Smithfield, Pa.	Fr., B.S.C.E.
Wise, John	Charleston	Jun., B.S.M.E.
Wood, Cecil William (c)	Hedgesville	Soph., A B.
Woodford, Alberta Louise	Morgantown	Grad. A. & S.
Woodford, Ina Juanita	Morgantown	Soph., A.B.
Woods, Ralph Davis (c)	Harrisville	2nd. Yr. Law
Woodyard, Edward Douglass	Spencer	Fr., A.B.
Woodyard, William (c)	Spencer	Fr., B.Sc.
Wright, Ivan	Lawford	Fr., A.B.
Wright, Maxwelton, Jr. (c)	Ceredo	Sen., A.B.
Yager, Barbara Johann	Wheeling	Special A. & S.
Yoke, French Arlington	Morgantown	Soph., B.Sc.
Zinn, Roy Brown (c)	Harrisville	Special Law

STUDENTS ENROLLED IN THE SCHOOLS.

Abernathy, Susan Elizabeth	Keyser	Summer School
Adams, John	Sutton	School Agr
Alleman, Dora Amanda	Parkersburg	Summer School
Ambrose, Nancy	Martinsburg	Summer School
Ammons, Mary	West Alexander, Pa.	Summer School
Andrews, Edward Cornelius (c)	Tarrytown, N. Y.	School Agr.
Anderson, Isabella	Parkersburg	Summer School
Armstrong, Benjamin Harrison	Parkersburg	Summer School
Armstrong, Mary Jean	Triadelphia	Summer School
Arnold, Stewart Edessa	Piedmont	Summer School
Atkinson, Jessie	New Martinsville	Summer School
Augustine, Edna	Thomas	Summer School
Baker, Guernie DeArmitt	Cheat Haven, Pa.	Music
Baker, Marguerite	Morgantown	Music
Barberie, Camilla	Athens	Summer School
Barbee, Porter	Athens	Summer School
Barker, Goldie Emaline	Mona	Music
Barker, Lieu	Morgantown	Music
Barnette, Herbert N.	Hartley	Summer School
Barnette, Effie Olive	Hartley	Summer School
Barnette, Elsie Virginia	Ft. Pleasant	Summer School
Barns, Bernie Hodges	Morgantown	Summer School
Bartlett, Esther	Philippi	Summer School
Batten, Beryl	Morgantown	Music
Batten, Ruth	Morgantown	Music
Bayley, Hazel Claire	Grafton	Music
Beard, Vivian	Parkersburg	Summer School
Beard, Margaret Helen	Waynesburg, Pa.	Summer School
Beckett, Ernest Clyde	Morgantown	Music
Beckley, Sara Evelyn	New Cumberland	Music
Beltzhoover, Kathryn Eckels	Shepherdstown	Music
Beltzhoover, Lucie Adele	Shepherdstown	Music
Berry, Leota Morgan	Morgantown	Music
Berry, Darwin Feather	Morgantown	Music
Bibb, Anna Kelley	Oak Hill	Summer School
Bigler, Mary Lavina	Morgantown	Music
Bishop, Frederick John	Morgantown	Music
Black, Margaret Alvina	Sistersville	Night Class
Blackburn, Wade Francis	Stahlstown, Pa.	Summer School
Blair, Alice Virginia	Hyndman, Pa.	Summer School
Blenko, Grace Agnes	Clarksburg	Music
Blessing, Ollie	Charles Town	Summer School
Bonar, Florence May	Glen Easton	Summer School
Booher, Ella Jeanette	Moundsville	Music
Bour, John William	Morgantown	Music
Bowerman, Arthur Lindley	Charleston	Summer School
Bowlin, Emma	Wheeling	Summer School

Bradley, Wilda Lea	Littleton	Music
Brand, John Durward	Morgantown	Music
Brand, Buena Vista	Morgantown	Music
Brock, Eleanor	Morgantown	Music
Brown, Laura Mae	Hinton	Summer School
Browning, Marie Louise	Thomas	Summer School
Bruce, Lottie Bell	New Martinsville	Summer School
Burchinal, Bertha Ellen	Smithfield, Pa.	Music
Burkhardt, Otto Gottlieb	Morgantown	Summer School
Bush, Edith Gertrude	Grafton	Music
Bushnell, Francis Laverne (c)	Strafford, Vermont	School Agr.
Cain, Eva	Cairo	Summer School
Cain, Emily	Cameron	Summer School
Calfee, Florence Georgia	Bluefield	Summer School
Campe, Peter Herbert	Charleston	Summer School
Care, Rose	Follansbee	Summer School
Carmichael, Harry Edmond	Glen Easton	Summer School
Carney, Florence Alfreda	Charleston	Music
Carper, Ota Gay	Amma	Summer School
Carr, Bertha	New Hope	Summer School
Carr, Hattie	New Hope	Summer School
Carroll, Nevada Bryan	West Hamlin	Summer School
Carroll, William Walter	West Hamlin	Summer School
Carroll, Dallas Earl	Kingwood	Summer School
Cather, Maude Minshall	Morgantown	Music
Chapman, John	Morgantown	Night Class
Chase, Florence	Ripley	Summer School
Chase, Vernie Mae	Charleston	Summer School
Chrisman, Martha Virginia	Morgantown	Music
Chrystal, Marguerite	Davis	Summer School
Clark, Charles Lewis	Bluefield	Summer School
Clark, Erma Grace	Neola	Summer School
Clawson, Nevada Arietta	Sistersville	Summer School
Clinton, Thirza	Parkersburg	Summer School
Clum, Annie Jemina	Morgantown	Music
Cobun, Adah Prudence	Kingwood	Summer School
Coffman, Everett Guy	Brown	Summer School
Cogar, Mamie Marie	Bolair	Summer School
Cokeley, Erma Blanche	Clay	Music
Cole, Alice Marie	Grafton	Summer School
Coleman, Mary Livingston	Clarksburg	Music
Collett, Marguerite Minerva	Morgantown	Music
Collins, Lucretia Ross	Richwood	Summer School
Conaway, Gertrude	Barrackville	Summer School
Conlon, Katherine	New Cumberland	Summer School
Conrad, Clara Wooddell	Webster Springs	Summer School
Cooper, Cora	Harrisville	Summer School
Cooper, Stella Idealia	Chambersville	Music
Copley, Frank	Morgantown	Music
Corker, Alice	Hinton	Summer School
Cosby, Mary Calloway	Bluefield	Summer School
Coulson, May Angie	Morgantown	Music
Courtney, Wilma Marie	Morgantown	Music

Cowell, Blanche	Wadestown	Summer School
Crago, Benjamin	Carmichaels, Pa.	Summer School
Craig, Mary Ella	Charleston	Summer School
Craighill, Lollie Elizabeth	Charles Town	Summer School
Crow, Iva	Mona	Summer School
Cuppet, Mabel	Terra Alta	Summer School
Dadisman, Ira Lee	Hall	Summer School
Dalinsky, Anna Ida	Morgantown	Music
Dalinsky, Bessie	Morgantown	Music
Darnell, Mabel Noma	Walker	Music
Davies, David G.	Morgantown	Music
Davies, Blodwen	Morgantown	Music
Davis, Orla Alders	Salem	Summer School
Davis, Grace Catharine	Leivasy	Summer School
Davis, Lida Leota	Bluefield	Summer School
Davis, Charles Norman	Morgantown	Summer School
Davis, Eleanor Josephine	Morgantown	Music
Davis, Morgan	Morgantown	Summer School
Davisson, Gertrude	Harrisville	Summer School
Debrocq, Georgette	Point Marion, Pa.	Music
DeGarmo, Mary Elizabeth	Wadestown	Summer School
Demoss, Bertha Lee	Morgantown	Music
Dille, Mary Ethel	Morgantown	Music
Dinwiddie, Eva	Haleford, Va.	Summer School
Dinwiddie, Mary	Haleford, Va.	Summer School
Dixon, Ida Amanda	Rowlesburg	Music
Domer, Marion	Albert	Summer School
Donham, Asia Mildred	Fairmont	Music
Donham, Katharine Ferne	Fairmont	Summer School
Douglass, Edna	Camden	Summer School
Dowling, Alice Jane	Coraopolis, Pa.	Summer School
Doyle, Lela	Paw Paw	Summer School
Drennen, Lida Fulman	Charleston	Summer School
Duffield, Minnie May	Burgettstown, Pa.	Summer School
Dunham, Orleyna Victor	Oakland, Md.	Summer School
Dutrow, Jennie May	Martinsburg	Summer School
Egbert, Freda Dorothy	Washington, D. C.	Summer School
Elder, Clemma Irvin	Morgantown	Music
Elosser, Edna Pearl	Doman	Summer School
Elliott, Genevieve Caldwell	Terra Alta	Music
Erskine, Anna Lee	Huntersville	Summer School
Evans, Walter Lyle (c)	Morgantown	School Agr.
Ewing, Clara Pyle	Frostburg, Md.	Summer School
Fahrner, Ruth	Helvetia	Summer School
Faris, Robert Davidson	Bridgeport	School Agr.
Fearer, Ava Hazel	Terra Alta	Summer School
Felton, Janet Flora	Parsons	Summer School
Ferguson, Della	Spencer	Summer School
Fetty, Daisy Winifred	Farmington	Music
Fetty, Lulu Mary	Hagans	Night Class
Fisher, Rossi Melville	Wilsonburg	Summer School
Fisher, Florence Bartlett	Wilsonburg	Summer School

Fitzwater, John	Swanton, Md.	Summer School
Fling, Fay	Morgantown	Music
Flynn, Helen Gertrude	Morgantown	Music
Flynn, Anna Mary	Morgantown	Music
Ford, Orfa Rex	Industrial	Summer School
Fortney, Jessie Rogers	Independence	Summer School
Fortney, Willis Claude	Independence	Summer School
Fryer, Ethel Mary	Mannington	Summer School
Gandy, Mary Anne	Terra Alta	Summer School
Gangloff, Emma Matilda	Wildwood, Pa.	Summer School
Gangloff, Anna Barbara	Wildwood, Pa.	Summer School
Gapen, Margaretta	Jefferson, Pa.	Summer School
Garrett, Alpha	Frostburg, Md.	Summer School
Garrison, Lillian Knight	Morgantown	Music
George, Ella	Green Sulphur Springs	Summer School
George, Blanche	Buffalo	Summer School
Getty, Jean Ewing	Groveton, Pa.	Summer School
Gillooly, Nora	Weston	Summer School
Glover, Sarah Elizabeth	Morgantown	Music
Glover, Peter Luther	Morgantown	Night Class
Goff, Claude	Goffs	Summer School
Gorman, James G.	Morgantown	Summer School
Gorrell, Effie Artensia	St. Marys	Summer School
Gregg, John Morton, Jr.	Morgantown	Music
Grimes, Bushrod	Deer Park, Md.	Summer School
Groff, Eleanor Grace	Berlin, Pa.	Summer School
Groff, Margaret Edna	Berlin, Pa.	Summer School
Grose, Nelle	Morgantown	Summer School
Grose, Ruth	Parkersburg	Summer School
Grose, Bessie Mattie	Parkersburg	Summer School
Grow, Alta Sadie	Williamstown	Summer School
Hagan, Fietta Matilda	Hero, Pa.	Music
Hagerty, Mary Elizabeth	Charleston	Summer School
Haines, David Clyde	Pine Bank, Pa.	Summer School
Hall, Ila Bent	Morgantown	Music
Hall, Golda Elizabeth	Morgantown	Music
Hall, Viola Myrtle	Morgantown	Summer School
Hamilton, Agnes	Highland	Summer School
Hamilton, Nella Bessie	Morgantown	Music
Hanifan, Mary Pearl	Charleston	Music
Hardy, Edith Lucretia	Morgantown	Music
Hartigan, Mary Virginia	Morgantown	Music
Hartley, Alice Katherine	Piedmont	Summer School
Hartman, Mettie Elizabeth	Morgantown	Music
Hartman, Verna Louise	Valley Point	Music
Hastings, Nellie	Charleston	Summer School
Hastings, Lynn	Cheat Haven, Pa.	Night Class
Hatfield, Mabel Pearl	Ellenboro	Summer School
Haught, Claire	Hartley	Summer School
Hawkins, Opie Maud	Pullman	Music
Heater, Claude Loy	Gassaway	Summer School
Heck, Sudie	Barboursville	Summer School

Henshaw, Frances Little	Martinsburg	Summer School
Hepburn, Nannie Katharine	Piedmont	Summer School
Hertzog, William Clyde	Shinnston	Summer School
Hewitt, Emmor Walter	New Cumberland	School Agr.
Hibbs, Ida	Independence	Summer School
Hill, Lizzie Florence	Bruceton Mills	Night Class
Hitchcock, Arta	Davis	Summer School
Hoff, Stella	Spencer	Summer School
Horne, Eleanor	Monongah	Summer School
House, George Edward (c)	Wheeling	School Agr.
Houze, Florine Manella	Point Marion, Pa.	Music
Houze, Marguerite L.	Point Marion, Pa.	Music
Howley, May	Wheeling	Summer School
Huber, Mary Ada	Helvetia	Summer School
Hubbs, Elsie	Glen Easton	Summer School
Hubbs, Georgia	Glen Easton	Summer School
Hunt, William French	Morgantown	Summer School
Hunter, Mary Permelia	Pt. Marion, Pa.	Summer School
Hunter, Anna Rogers	Pittsburg, Pa.	Summer School
Hunter, Erwin Garfield	Morgantown	Night Class
Hupp, John Clemmens	Cameron	Summer School
Hupp, Ora	Parkersburg	Summer School
Hurxthal, Eva	Morgantown	Summer School
Huyett, Nettie	Charles Town	Summer School
Imlay, Annie Cecelia	St. Marys	Summer School
Israel, Mattie Virginia	Clarksburg	Summer School
Jackson, Clarence Atkeson	Lewisburg	School Agr.
Javins, Lucy Jayne	Charleston	Summer School
Jenkins, Lula Merrill	Terra Alta	Summer School
Johnson, Coral	Rock Forge	Summer School
Johnson, Daisy	Rock Forge	Summer School
Johnson, Sue Montgomery	Keyser	Summer School
Johnston, Olive	Morgantown	Summer School
Jones, Margaret	Morgantown	Music
Jones, Margaret Elsie	Morgantown	Music
Jones, Alta Flora	Bellaire, Ohio	Summer School
Kaufman, Agnes	McMechen	Music
Keatley, Ethel Dana	Hinton	Summer School
Kelley, Alvan Clark	Morgantown	Summer School
Kelly, Robert Ray	Terra Alta	Summer School
Kergan, Della Verna	Frostburg, Md.	Summer School
Kincaid, Lena	New Martinsville	Summer School
King, Russell Howard	Eglon	School Agr.
Kiser, William Raymond	Alaska	School Agr.
Kline, Edward Darrell	Monongah	Summer School
LaBoyteaux, Bee	Charles Town	Summer School
Lantz, Eleanor	Kirby, Pa.	Music
LaRue, Elizabeth	St. Marys	Summer School
LaRue, Margaret Rebecca	Academy	Summer School
Leedom, Aurora Fansler	Columbia, Mo.	Music
Lemasters, Harvey Luther	Conaway	Summer School

Leonard, Grace	Mannington	Music
Lightburn, Grace Whittlesy	Jane Lew	Summer School
Liston, Ray	Morgantown	Summer School
Locke, Forest Brady	Parkersburg	Summer School
Love, Mary Onida	Martha	Summer School
Madden, Vida	Vegan	Summer School
Madeira, Dorcas	Morgantown	Music
Marshall, Ruby Gail	Clarksburg	Music
Marten, Lenora	Shepherdstown	Summer School
Martin, Florence Nora	Shinnston	Summer School
Martin, Esther Elinor	Metz	Music
Mason, LaMarian Mercer	Morgantown	Summer School
Matthew, Mary	Clarksburg	Summer School
Maxwell, George Ralph	Morgantown	Music
McCauley, Alma	Sutton	Summer School
McConnell, Jessie Beatrice	Sherrard	Summer School
McCreery, Nancy Jean	Morgantown	Music
McDonnell, Lucy	Flemington	Summer School
McElhaney, Alice Catherine	Dunbar, Pa.	Summer School
McElhaney, Izetta Blanche	Dunbar, Pa.	Summer School
McGraw, Lena Mayo	Academy	Summer School
McGugin, Maggie	Ravenswood	Summer School
McIntyre, Mabel	Middlebourne	Summer School
McKown, Lacy	Spencer	Summer School
McKown, Darrel M.	Spencer	Summer School
McKown, Jennie Edith	Coraopolis, Pa.	Summer School
McLaughlin, Goldie	Everson, Pa.	Summer School
McMorrow, Hattie	Glendon	Summer School
McMorrow, Mary	Glendon	Summer School
McPherson, Cecile	Parkersburg	Summer School
McVey, Warren Herbert	Boomer	Summer School
Menefee, Ida Florence	Keyser	Summer School
Milhoan, Anna Frances	Liverpool	Summer School
Millan, Josie Stewart	Cottonhill	Summer School
Miller, Harold Clayton	Eglon	Summer School
Miller, Leroy Brooks	Morgantown	Music
Miller, Vivian	Morgantown	Music
Miller, Edna Margaret	Fairmont	Music
Miller, Myrl O'Neal	Parkersburg	Music
Mitchell, Benjamin Harrison	Volga	Summer School
Monier, Louis	Brilliant, Ohio	Summer School
Moore, Katherine	Proctor	Summer School
Moore, Fred VanVoorhis (c)	VanVoorhis	School Agr.
Moreland, Sara Hunter	Connellsville, Pa.	Summer School
Morgan, Liss Rhey	Pine Grove	Music
Morgan, Gladys Pearl	Mannington	Music
Morgan, Lorena Virginia	Buckhannon	Summer School
Morgan, George Brown	Adrian	School Agr.
Morgan, Dorothy Virginia	Grafton	Summer School
Morgan, Joseph Elmer	Friendly	Summer School
Morris, Sarah	Belle Vernon, Pa.	Summer School
Morris, Edna Leyman	Morgantown	Music
Morrison, Lewis French	Morgantown	Summer School

Moser, Samuel George	Smithfield, Pa.	Summer School
Mundorff, Henrietta	Coraopolis, Pa.	Summer School
Muse, Stella	Dairs	Summer School
Myers, Emma Frances	Huntington	Summer School
Myers, Ivy Lee	Huntington	Summer School
Nicholls, Emile Julius	Morgantown	Music
Nottingham, Gaynell	Morgantown	Summer School
Nottingham, Robert Neill (c)	Morgantown	School Agr.
Nowery, Chella	Parkersburg	Summer School
Nunan, Mary	Gary	Summer School
Nutter, Flavelle	Philippi	Summer School
Ogden, Mary Lou	Salem	Music
Orth, Christina	Charleston	Summer School
Orth, Ella	Charleston	Summer School
Parker, Edith	Mona	Music
Parker, Goldie Love	Morgantown	Music
Parriott, Eulalia Dixie	Bellton	Music
Patterson, Richard	Morgantown	Summer School
Paugh, George	Thomas	Summer School
Pauly, Marie Uldine	Waynesburg, Pa.	Summer School
Pearcy, Una Virginia	Blandville	Music
Pennington, Eunice	Morgantown	Summer School
Pennybacker, Virginia	Parkersburg	Summer School
Peterson, Oda Kate	Weston	Summer School
Pickenpaugh, Beulah Frank	Morgantown	Music
Pippin, Irene Mae	Morgantown	Music
Pixler, Albert Kelly	Morgantown	Music
Platzer, Fred	Cliff Top	Summer School
Posten, Lola Bernice	Morgantown	Music
Price, Mary Belle	Morgantown	Music
Price, Vera Lee	Roncoverte	Summer School
Price, Mabel	Morgantown	Music
Pyles, Ethel Maud	Terra Alta	Summer School
Rake, John Daniel	Duncan	Summer School
Reed, Ruth	Williamstown	Music
Reid, Boydie	Triadelphia	Summer School
Reuner, Mabel Zura	Morgantown	Music
Remage, Russell	Gressaway	Summer School
Reynolds, Vivian Gordon	Grafton	Summer School
Reynolds, Lottie Leora	Eutons	Summer School
Riggs, Isaac Larkin	Morgantown	Summer School
Rippetoe, Elsie	Charleston	Summer School
Rist, Henry David	Jacksonburg	Summer School
Rist, George Edward	New Martinsville	Summer School
Ritter, Kate	Wheeling	Summer School
Robbins, William	Morgantown	Music
Roberts, William Ernest (c)	St. Albans	School Agr.
Robertson, Henry Clay	Charleston	Summer School
Robinson, Grace	Connellsville, Pa.	Summer School
Robinson, Bessie May	Morgantown	Night Class
Rogers, Margaret Neville	Ragan, Neb.	Music

Rogers, Mary Washington	Morgantown	Music
Ross, Anna Elizabeth	Flemington	Music
Ross, Dee Louise	Bridgeport	Music
Sadler, Jennie	Bluefield	Summer School
Sanderson, Cecil Blandford	Morgantown	Music
Savage, Edith	Charleston	Summer School
Shertzinger, Frances Catherine	Morgantown	Music
Schmeichel, Emilie Louisa Augusta	Morgantown	Music
Schrontz, Samuel Braden	Washington, Pa.	Summer School
Scott, Goddie	Philippi	Summer School
Sellers, Russell	Middlebourne	Summer School
Settle, Nina Forest	Charleston	Summer School
Shaffer, James Harvey	Newburg	School Agr.
Shafer, Paul Noble (c)	Independence	School Agr.
Shepler, Katharine Emma	Scottdale, Pa.	Summer School
Shoulders, Charles Jesse	Horner	School Agr.
Shriver, Idah Mae	Wadestown	Summer School
Shriver, John Leslie (c)	Sistersville	School Agr.
Simmons, Hattie Ann	Freemansburg	Summer School
Simons, Katherine May	Eckhart, Md.	Summer School
Sine, Julia Elizabeth	Parkersburg	Music
Sisler, Rebecca Kate	Terra Alta	Summer School
Smith, Frank Edward	Watson	Summer School
Smith, Hazel Martha	Wheeling	Summer School
Snarr, Otto Welton	Rock Oak	Summer School
Snyder, Daniel Lester	Levels	Summer School
Sommer, John Wheeler	South Side	School Agr.
Spriegel, Delsie May	Charleston	Summer School
Sproul, Robert Harrison	Ohiopyle, Pa.	Summer School
Straley, Mary	Ripley	Summer School
Strickler, Robert Parvin	Elkins	Summer School
Sycafoose, Francis Newton	Webster Springs	Summer School
Tarr, Helen Elizabeth	Morgantown	Music
Tavenner, Helen Louise	Parkersburg	Music
Taylor, Josephine	Ripley	Summer School
Taylor, Elber Wilson	Barger Springs	Summer School
Taylor, Leslie Owen	Weston	Summer School
Thomas, Janet	Morgantown	Music
Thompson, Marie	Morgantown	Summer School
Thorn, Paul Castleton	Palestine	Summer School
Thurber, Ethel Milroy	Wheeling	Summer School
Twigg, Thornton S.	Flintstone, Md.	Summer School
Tuckwiller, Rachel	Lewisburg	Music
Vannoy, Isabelle Jane	Sistersville	Summer School
Van Dyne, Hettie Elizabeth	Allister	Summer School
Vanorsdale, Lizzie	Great Cacapon	Summer School
VanZandt, Agnes	Newburg	Summer School
Veon, Emma	Waverly	Summer School
Vinson, Fred Meyer	Washington, Pa.	School Agr.
Wade, Georgia Chorpening	Morgantown	Music

Wallace, Luella	Wheeling	Summer School
Wambaugh, Olive Mae	Morgantown	Music
Wass, Winifrede	Harrisville	Summer School
Waters, Martha Boyers	Morgantown	Music
Watkins, Grace Minette	Grafton	Music
Watson, Harold Elmo	Reedsville	Summer School
Watson, Nelle Bly	Philippi	Summer School
Wayt, William Blaine	Millsboro	Summer School
Weese, Ollie May	Moorefield	Summer School
Wells, Anna Edna	Lee's Summit, Mo.	Summer School
Welton, Alice Virginia	Piedmont	Summer School
Westbrook, Cordelia	Willow	Summer School
Wherry, James Elwood	Coraopolis, Pa.	Summer School
Whetsell, Mabelle Eleanor	Morgantown	Music
White, Virginia Ethel	Persinger	Summer School
White, George Solomon	Philippi	Summer School
White, Lawrence Clermont	Parkersburg	Summer School
Williams, Lucile	New Martinsville	Summer School
Williams, Gladys	Morgantown	Music
Williamson, Samuel Greenberry	Shepherdstown	Summer School
Williamson, Mabel Mae	Friendly	Summer School
Wilson, Paul Preston	Barboursville	Summer School
Wilson, Beatrice	Woodland	Summer School
Wilson, Ocea Mildred	Harrisville	Summer School
Wince, Addie Columbia	Philippi	Summer School
Wolford, Eunice Lowell	Romney	Music
Woodward, Axie Lee	Rose Hill, Va.	Music
Woodyard, Ruth	Grafton	Summer School
Wright, Edna Olevia	Hiorra	Summer School
Young, Jennie Edith	Morgantown	Summer School
Young, Edna	Ripley	Summer School
Young, Charles Ross	New Martinsville	Summer School
Zearley, Joy	Uniontown, Pa.	Summer School
Zinn, Jetta Marie	Reedsville	Summer School

SUMMARY OF UNIVERSITY ENROLLMENT FOR 1913 and 1914.

(AS FAR AS REPORTED, MARCH 1, 1914.)

THE COLLEGES

	CANDIDATES FOR DEGREES								Special Students			Total Enrollment				
	Grad.	Sen.	Jun.	Soph.	Fresh.	Men	Women	Total	Men	Women	Total	Men	Women	Regular Semesters	Summer School only	Grand Total
Arts and Sciences	28	47	49	81	213	271	147	418	4	14	18	275	161	363	73	436
Engineering	------	13	22	34	45	114	00	114	4	0	4	118	00	112	6	118
Agriculture	------	13	11	11	28	63	00	63	5	0	5	68	00	59	7	68
Law	------	9*	24*	10*	00	42	1	43	11	0	11	53	1	48	6	54
Medicine	1	1	3	15	00	17	3	20	0	0	0	17	3	20	0	20
Totals	29	83	109	151	286	507	151	658	24	14	38	531	165	604	92	696

THE SCHOOLS

	Men	Women	Regular Semesters	Summer School only	Grand Total
The School of Music	14	109	105	18	123
The School of Agriculture	21	00	21	0	21
The Summer School	67	227	------	------	294†
The Farmers' Course, (Ten Days)	104	00	------	------	104
The Night Classes	4	4	------	------	8
The School of Good Roads, (Ten Days)	146	00	------	------	146
Totals	356	340	------	------	696
Entire Enrollment at Morgantown	887	505	------	------	1392
Enrollment in Agricultural Extension Schools outside of Morgantown	495	127	------	------	622
GRAND TOTALS	1382	632	------	------	2014‡

*Students in the College of Law are known as Third-year, Second-year, and First-year Students. †The total enrollment in the Summer School, including 92 regular college sudents, 18 music students and 85 students who subsequently re-enrolled in some other college or school, was 489. ‡Of this total 102 are residents of states other than West Virginia.

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